



ES/Server PCI Gateway

***Twinax Emulation Card
Server and Client Emulation Software***

User's Administration Manual



Complete Midrange Solutions



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INTRODUCTION

ES/Server is a hardware/software package that connects your PC to IBM Midrange computers.

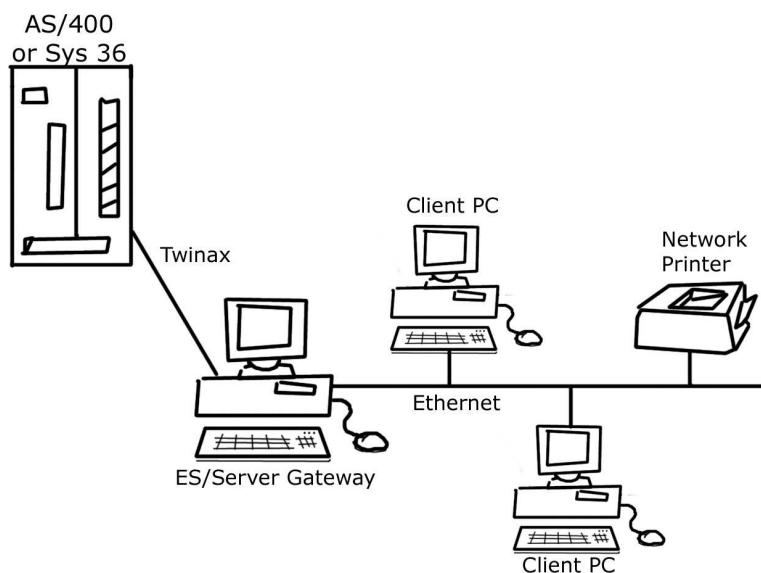
The hardware component is the [PCI](#) adapter, which plugs into an expansion slot in the back of your PC. The PCI adapter supports standard twinax cable connections through an on-board D-connector and a T-connector, included in this package.

The hardware driver is the software component that provides Windows with the information to support the actual hardware.

The software portion of ES/Server is the Emerald Series emulation software. The software is included on the enclosed diskettes.

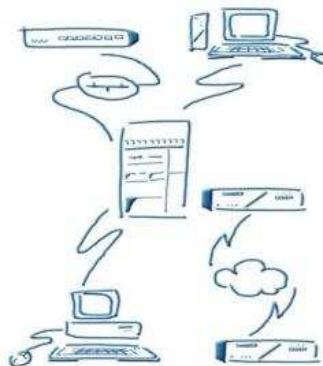
PC REQUIREMENTS

- IBM PC (or compatible) with 486, Pentium®, or higher processor,
- CD-ROM drive,
- Hard drive with 6MB available,
- A minimum of 4 MB of available memory,
- Windows 98, NT 3.51 (or above), 2000 or XP,
- One [PCI](#) free slot according to the following minimum specification:
 - Data Bus speed: 33MHz
 - Data Path Width: 32 bit



ES/Server Features

- Compatible with [PCI](#) specification version 2.1.
- There is no need to configure memory and I/O address during installation.
- The adapter supports, automatically, the entire range of interrupts (IRQ 3-15).
- Supports 7 sessions and 7 addresses using Emerald Series emulation software.
- Nine display station models and thirteen printer models from which to choose to emulate.
- Communicates with IBM S/36, S/38, Advanced Series 36, and AS/400.
- 32-bit Emulation Software included. Setup detects the PC operating system and installs the appropriate emulation.
- With the [emulator](#), you can:
 - Open multiple host sessions at any one time and work with those sessions to run host applications;
 - Emulate a variety of host display stations and printers;
 - Customize the IBM host screen to fit your needs by changing the screen colors, the [font](#), the shape of the cursor, and other features;
 - Use [HotSpots](#) to enact host menu items and commands by clicking on them with the mouse;
 - Assign many IBM host functions to your PC's keyboard;
 - Automate host procedures by recording macros. You can play back the macro any time you want to perform the procedure;
 - Copy IBM host screens to the Windows clipboard. From there you can paste them into PC applications or other host applications;
 - Copy tabular data from the IBM host to PC applications, such as spreadsheets;
 - Use [ETU](#) to transfer files between the IBM host and the PC. ETU is a file transfer utility, available from N Lynx Systems.



ES/Server card Technical Specifications

- [PCI](#) version 2.1
- Power Requirements +5, +12 volts
- Emulation 5250
- Signal Strength 5000 feet (Twinax)
- Signal Strength 15 – 500 feet (CAT5 & [baluns](#))
- IRQ and Memory Auto (Plug and Play)
- ES/Server card part number 00-31-9607-000
- ES/Server cable assembly, T-connector, twinax-DB15M 07-351908501
- ES/Server emulation software 63-373680901



Preparations

If neither ES32 nor the Twinax Adapter was previously installed, you can start at the next section. Otherwise, we recommend **removing all** previous versions of ES95 (or ES32) from the computer, by using the uninstall utility found in the ES95 (or ES32) folder and deleting the physical driver files from the PC. This will prevent Windows from reinserting an incorrect hardware driver.

- 1) Click the Windows **Start** button.
- 2) Select "**Programs**", then the **ES32 (or ES95)**, and then finally "**Uninstall**".
- 3) You should also uninstall the hardware from the Device Manager. (If the Twinax Adapter hardware was been done before, and the driver chosen was wrong, then you must uninstall.
- 4) Go to the Desktop, and right-click on "**My Computer**".
- 5) Select "**Properties**", which will bring up the **System Properties** window.
- 6) Select the "**Hardware**" tab, and then select the **Device Manager** button.
- 7) First look for "**Twinax Adapters**", if it does not exist, then look for 'PCI Simple communication device', or a card that you do not recognize in "Other".
- 8) Click on the "+" next to Twinax Adapter to show the devices in this group. Click on "**NLynx PCI Twinax Adapter**" to highlight it. Select the **Action** menu and then '**Uninstall...**'.
- 9) Use the Windows Search (For Files or Folders) or Find to look for the **PCITwin.VxD** or **NLTwinax.sys** and delete them, wherever you find them.

Installing The ES/Server PCI Adapter

There are three steps to successfully installing the ES/Server adapter card when used together with the ES/Server software from Ringdale, Inc.

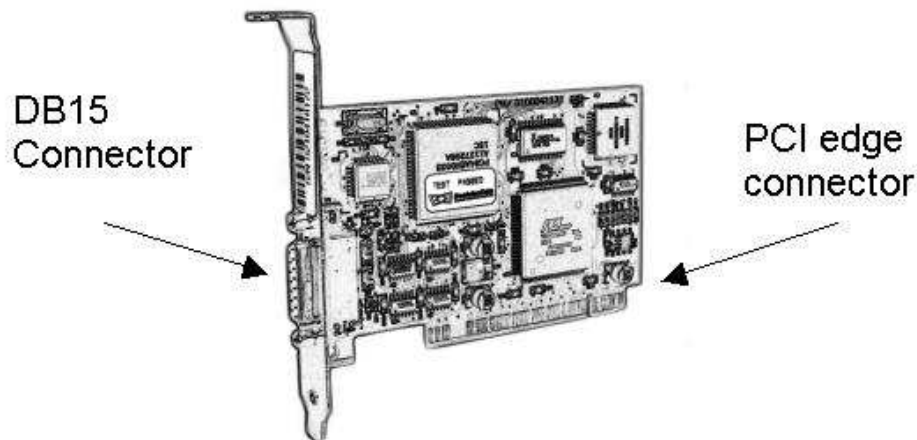
- Install the ES/Server PCI adapter card in your PC
- Attach the [T-cable](#) (sometimes called "the pigtail") and twinax cable (or [balun](#) and CAT5) wiring to the ES/Server adapter card
- Installation of the ES/Server software

Each of the above steps is described below.

NOTE: Adapter cards are extremely sensitive to static electric charges. Be sure to discharge your body's static electricity by touching a grounded surface before handling an adapter.

INSTALLING THE ADAPTER

- 1) Switch off all computer system components, unplug the computer, and remove the computer cover.
- 2) Work in a static-free area and touch the computer chassis often to equalize static charges.
- 3) Insert the ES/Server adapter card into a free PCI slot. The PCI slots are white or cream-colored. The 15-pin D-connector should protrude through the rear of the PC chassis.
- 4) Align the adapter and retaining bracket and tighten the screws to the retaining bracket. It is important to tighten the screws because twinaxial cable is heavy enough to pull the card out of the PCI socket.
- 5) Replace the cover on the PC.



The ES/PCI Twinax Adapter Card

Connecting the T-cable and Twinax Cables

The following instructions assume that a twinax cable has been cabled-through from the previous terminal on the line or directly from a port on the host system.

In order to attach your PC to the host, you need two cables: an existing host twinax cable and the self-terminating [T-cable](#) cable included in your ES/Server package.

The T-cable cable has two ends: the 15-pin end, called the D-connector, which connects to the adapter card, and the dual-branch end, called the T-connector, which connects to the host twinax cable.

1. Plug the 15-pin D-connector securely into the back of the ES/Server adapter card.

To ensure good grounding, fasten the D-connector's mounting screws, making certain the connector is firmly attached to the ES/Server adapter card.

Attach the host twinax cable to either of the T-connector branches.

NOTE: If you use [baluns](#) and CAT5 or CAT6 wiring, you should make certain that the CAT5 wiring is at least 15 feet in length.

NOTE: If you use baluns and CAT5 or CAT6 wiring, you cannot [daisy chain](#) because the impedance will not be unbalanced. Baluns and CAT5 wiring should only be connected in a point-to-point or star topology with a star hub.

2. If you are cabling-through to another terminal farther down the line, attach that next terminal to the remaining T-connector branch. Make certain that the last device on a twinax daisy chain has properly terminated the line.

Since this is a self-terminating cable, you do not need a cap for the open end of the T-connector.

NOTE: If you are installing multiple ES/Server adapter cards, repeat steps 1 and 2 for each adapter installed.

You are now ready to power up and install the ES/Server hardware driver.

Installing the ES/Server Hardware Driver

Installing the hardware driver is slightly different between the different operating systems. If you do not direct the Windows wizard to the correct driver on the CDROM, Windows may install a default driver that will not work, or not all. With Windows, there is always more than one correct way to install the driver.

If you are using **Win98, Windows Millennium, or Windows 2000**, the driver should be **NLTwinax.sys** dated **12/10/2004**.

If you are using **Client Access** on any operating system, the driver should be dated **5/20/1999** and the driver file should be **PCITwin.VxD**.

If you are using **Win95, or WinNT4**, the driver is **PCITwin.VxD** dated **11/11/1998**, but it shows in the Device Manager as **5/20/1999**, which is the date of the [INF](#) file.

Basic Instructions to Install the Hardware Driver

These are the basic instructions to install the hardware driver for any operating system. More complete instructions for each operating system follow.

- 1) After Windows starts up, the PC should detect the twinax card.
- 2) The Windows Add New Hardware Wizard will appear. Insert the ES/Server CD into CD drive and follow the Wizard screens.
- 3) Search for a device.
- 4) If you get the message "Please insert the disk labeled Win xx Drivers Disk" Click OK and Browse to the ES/Server CD.
- 5) Browse to the **INF** folder and then select the folder for your Windows Operating System version.
- 6) When the message "Copy files from Windows" displays the correct path for the [nlynx.inf](#) file Click OK.

Windows XP Driver Installation Instructions

- 1) **Power off** the PC. **Insert** the N Lynx ES/Server Twinax adapter into an available PCI slot on the motherboard.
- 2) **Power on**, **insert the ES/Server CDRom** and logon to the PC.
- 3) The **Found New Hardware** window will pop up in the bottom right and indicate that it has detected a **"PCI Simple Communications Controller"**. Click on the window anywhere.
- 4) It should bring up the **Found New Hardware Wizard** dialogue box. If it asks, **"Can Windows connect to Windows Update to search for software?"** click **"No, not at this time"** and then click the **Next** button.
- 5) It should indicate the **N Lynx PCI Twinax Adapter**. Choose the **'Install the software automatically (Recommended)'** option, and then click **Next** again.
- 6) It will find two drivers on the CD (Windows 98 and Windows 2000). Choose the driver for Windows 2000. Either double-click it, or click once to select it. The path to the driver should be **(D:\INF\WIN2000)** Where D: is your CD-ROM drive.
- 7) Click **Next**
- 8) It will install the driver from the CD-ROM and will tell you **"The wizard has finished installing the software for: N Lynx PCI Twinax Adapter,"** you finally get the **Finish** button. And you should click it.

Verify the Driver

After installing the driver, you should check it to make certain it is correct.

- 1) Go to the Desktop, and right-click on **"My Computer"**, and select **"Properties"**, which will bring up the **System Properties** window.
- 2) Select the **"Hardware"** tab, and then double-click the **Device Manager** button.
- 3) Click on the **"+"** next to **Twinax Adapters**. Double-click on **"N Lynx PCI Twinax Adapter"** to select it. Select the **Driver** tab. For **Windows XP**, the driver version should be **5.0.1.7**. Click on the **Driver Details** button. The driver should be **C:/Windows/System32/DRIVERS/nltwinax.sys**. The **Driver Date** will be **"Not available"** and the **Digital Signer** will be **"Not digitally signed."**

If you do not have the latest driver, you can get it online at

<http://www.nlynx.com/html/tb-espciddrivers.htm>

Windows 2000 Driver Installation Instructions

- 1) **Power off** the PC. **Insert** the N Lynx ES/Server Twinax adapter into an available PCI slot on the motherboard. The slots are usually white or cream-colored.
- 2) **Power on** and logon to the PC.



- 3) The **Found New Hardware** window will pop up and indicate that it has detected a "**PCI Simple Communications Device**". Click the **Next** button.



It will bring up the **Found New Hardware Wizard** dialogue box, and either indicates a **"PCI Simple Communications Device"** or **"NLynx PCI Twinax Adapter"**. Choose the **'Search for a suitable driver for my device (recommended)'** option, and then click the **Next** button again.

NOTE: If the ES/Server card has been installed previously, it will indicate the **"NLynx PCI Twinax Adapter"**.

NOTE: If the ES/Server card has a hardware problem, it will indicate an **"Other PCI Bridge Device"**. If you get this message, contact warranty support at toll-free 888-278-9922.

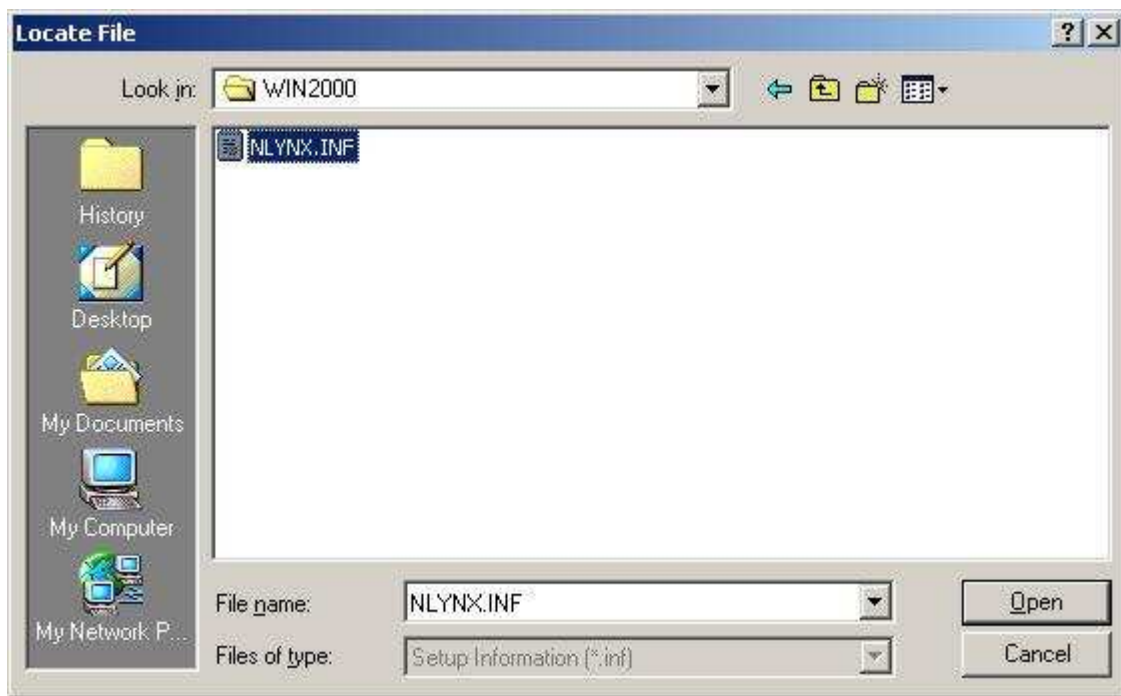




- 4) The **Locate Driver Files** dialogue box will come up. Insert the **ES/Server CD-ROM**. Remove the check from CD-ROM Drives. Choose **Specify a Location**, and then click **Next>**.



- 5) Click the **Browse** button.



- 6) Browse to your CD-ROM (usually the **D:** drive). You will see an **INF** folder, and then **INF/WIN2000**. You should see the **NLYNX** INF file. Double-click on it, or click it to select it and then click **Open**.



- 7) It should show the path as **D:INF\WIN2000**, if so, click **OK**.



- 8) Windows will search the specified location, and then compare the results to it's own.



- 9) Windows will indicate that it is going to install a driver for the PCI Simple Communications Controller. Click **Next**.



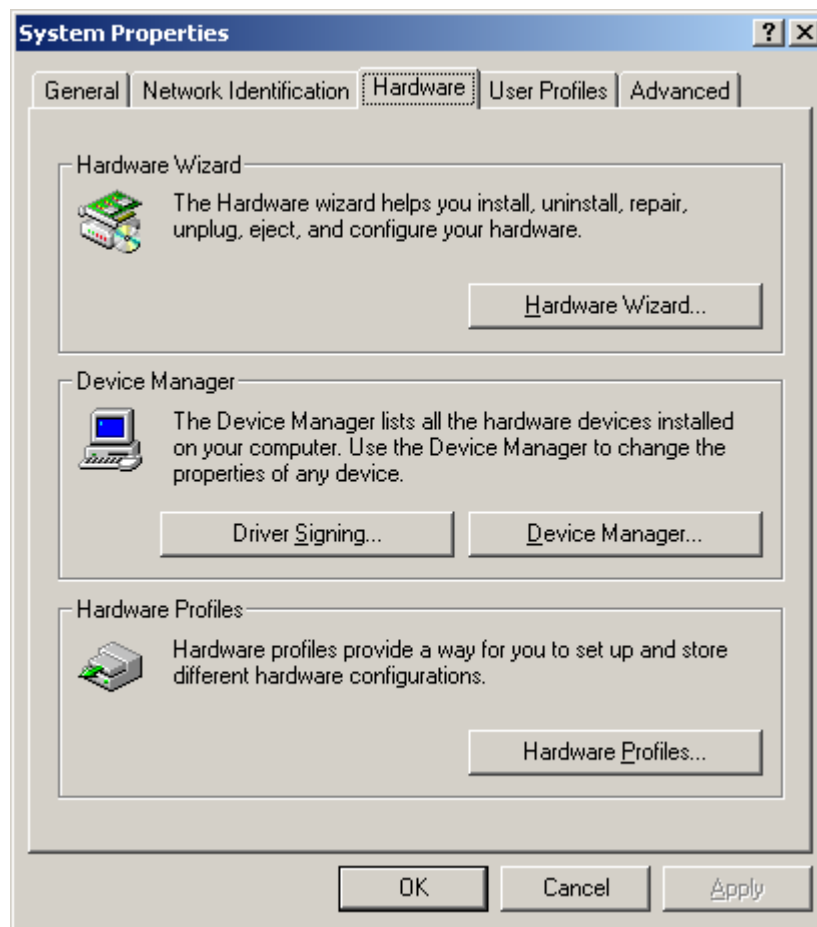
- 10) You finally get the **Finish** option. And you should click it.

Verify The Driver

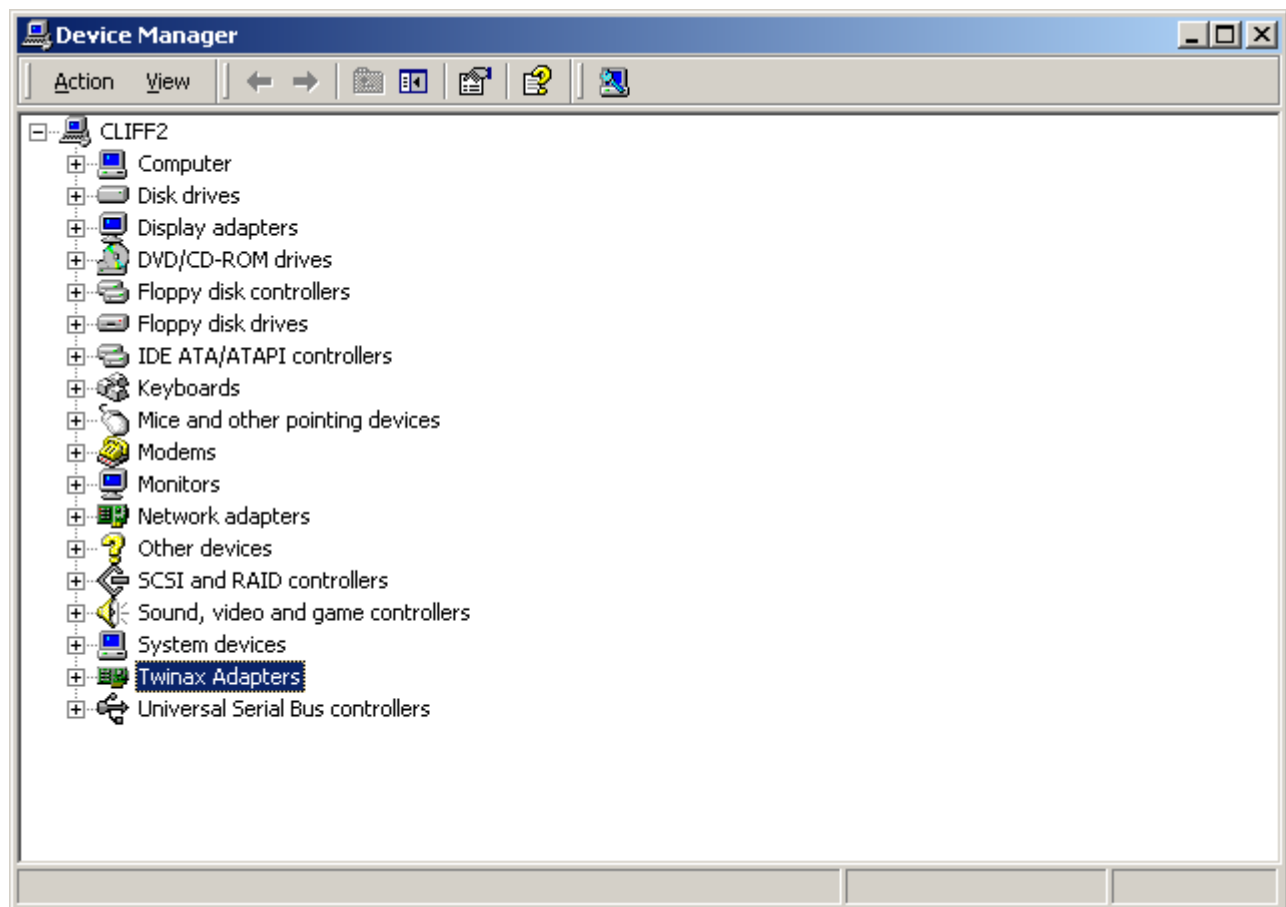
After installing the driver, you should check it to make certain it is correct.



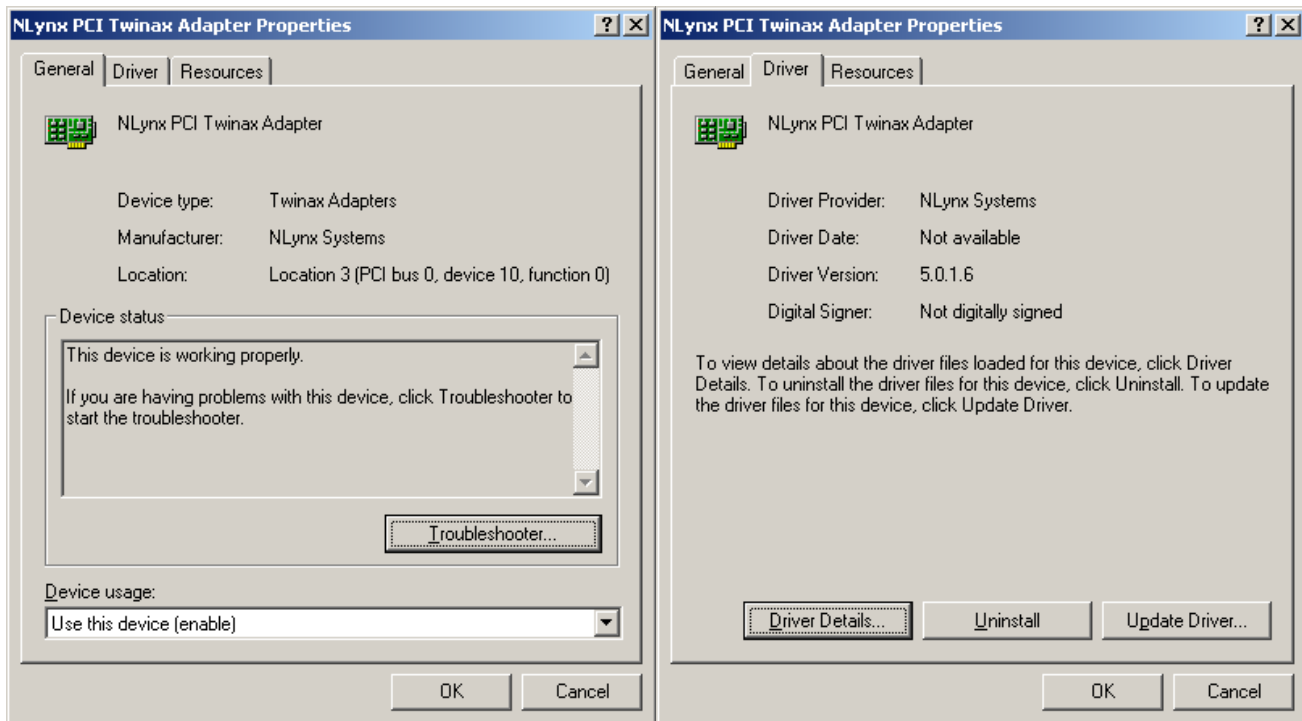
- 1) Go to the Desktop, and **right-click** on "**My Computer**".



- 2) Select "**Properties**", which will bring up the **System Properties** window.
- 3) Select the "Hardware" tab.
- 4) Select the Device Manager button.



- 5) Click on the “+” next to **Twinax Adapters**. Double-click on “**NLynx PCI Twinax Adapter**” to highlight it.



- 6) Select the **Driver** tab. For Windows 2000, the driver version should be 5.0.1.7. Click on the **Driver Details** button. The driver should be **C:/WINNT/System32/DRIVERS/nltwinax.sys**. You cannot see this here, but the INF file should be dated 10/13/2004 and the driver file should be **NLTwinax.sys** dated 10/12/2004.

If you do not have the latest driver, you can get it online at

<http://www.nlynx.com/html/tb-espciddrivers.htm>

Windows 98 Driver Installation Instructions

1. Power off the PC. **Insert** the NLinux ES/Server Twinax adapter into an available PCI slot on the motherboard. The slots are usually white or cream-colored.
2. **Power on** and logon to the PC.
3. The **New Hardware Found** window will pop up and indicate that it has detected a "**PCI Communications Device**" and then it should bring up the **Add New Hardware Wizard** dialogue box, and indicate the **NLinux PCI Twinax Adapter**. Choose the '**Search for the best driver...**' option, and then click **Next** button.
4. When prompted for the location of the driver or **INF** file, insert the **ES/Server CD-ROM**. Choose **Specify a location**, and then click on the **Browse** button. Double-click on the CD-ROM (usually the D: drive). Double-click on the **INF** folder, and then double-click on **Win98**. (It may not see a file. This is okay.)
5. You should be back at the **New Hardware Found Wizard**. When you have located the INF file the **Specify a location** box should say **D:\INF\WIN98**. If this is so, you will click the **Next** button.
6. Windows will indicate that it is going to install the **NLinux PCI Twinax Adapter** and tell you that it is going to put the driver at C:\WINDOWS\INF\OTHER\NLNXXS~1.INF. Once again you will click **Next**.
7. You finally get the **Finish** option. And you should click it.
8. After installing the driver, you should restart the PC.

Verify The Driver Installation

- 1) When the PC comes back, *right* click the '**My Computer**' icon and select **Properties**. It will bring up the **System Properties** window, where you will select the **Device Manager** tab.
- 2) Double-click on **Twinax Adapters**, and then double-click on the **NLinux PCI Twinax Adapter**.
- 3) After installing the driver, you should check it to make certain it is correct.
- 4) Click on the **Drivers** tab at the top. If you are using **Windows 98**, the Driver Date should be **10-12-2004**. If you click on the **Driver File Details** button, you will see **WINDOWS\SYSTEM\NLTWINAX.SYS**. It should be version **5.0.1.7**.

If you do not have the latest driver, you can get it online at

<http://www.nlinux.com/html/tb-espcidrivers.htm>

Windows NT Driver Installation Instructions

Windows NT is not a Plug N Play OS. Sometimes there is a setting in the BIOS for '**PnP OS -- Yes or No?**' This option is basically asking if you have a Plug and Play Operating System, (like Win98). If you select No, the BIOS attempts to perform the Plug n Play operation. Some BIOS do not have this function and the driver must be installed manually.

- 1) Insert the CDROM
- 2) Double-click on **My Computer**, then the CDROM, then go to **INF/WIN95**
- 3) Right-click on **NLYNXPCI.INF** and select **Install**. (Make certain that you RIGHT click, not left)
- 4) It will install the driver.
- 5) Restart the PC.
- 6) Check the following items:

Under **Programs/Administrative Tools/Windows NT Diagnostics/Services**, you should see "**Plug and Play**" with a status of '**running**'.

Under **Programs/Administrative Tools/Windows NT Diagnostics/Resources**, you should see "**pcitdlc**".

Under **Settings/Control Panel/Devices/** you should see a "**PnP ISA Enabler driver**".

Also under **Settings/Control Panel/Devices/** you should see a "**PCI Twinax Adapter**".

Search for **PCITwin.dll** in the **C:/Programs/ES32** folder.

Search for EMUAPP32.ini in the C:/WINNT folder.

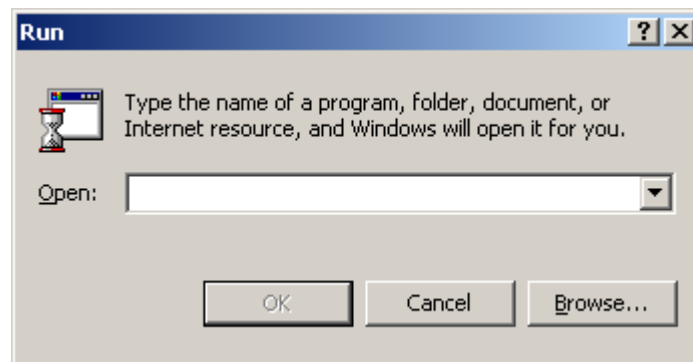
Search for PCITWIN.ini in the C:/WINNT folder.

Installing The ES/Server Software

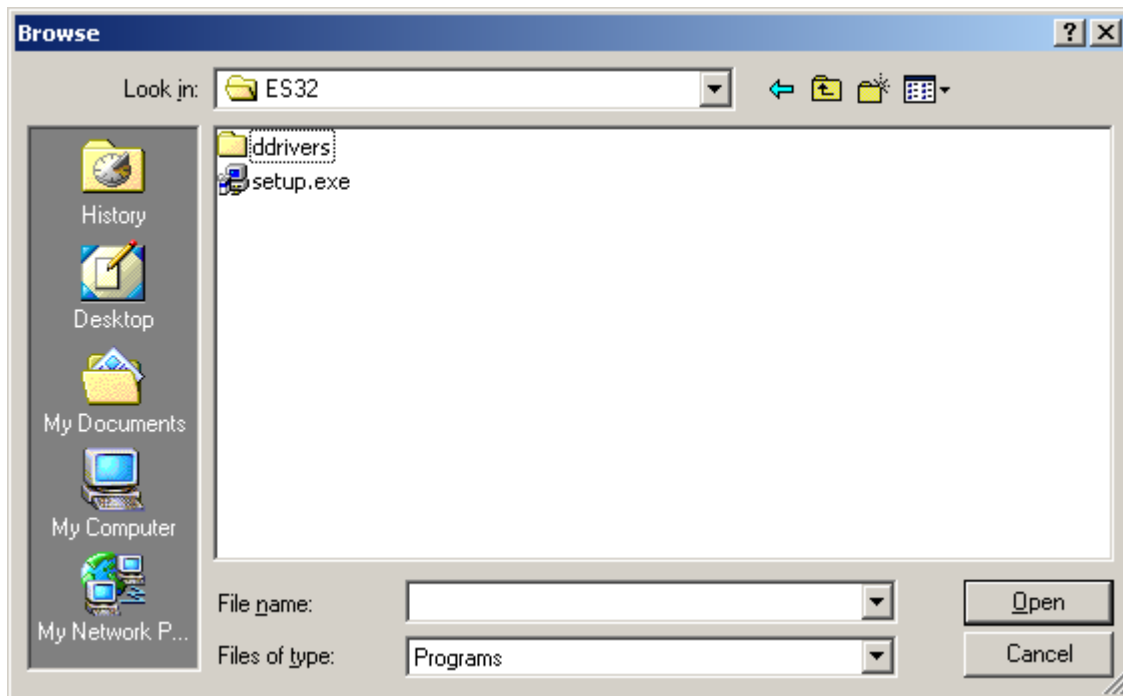
You can install the emulation software setup before installing the hardware driver, but you will not be able to configure the software until the hardware driver is properly installed.

Installing the software is the same for Windows 9X, Windows NT and Windows 2000 users.

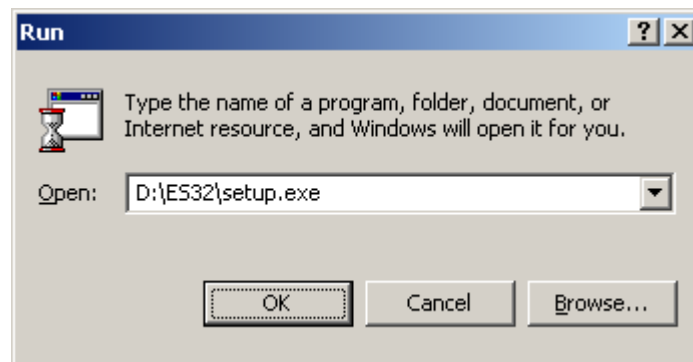
To Install the Emulation Software



- 1) After the card and hardware driver has been installed successfully, run the emulation software setup from the **ES32** folder on the CDROM. Click the Windows **Start** button, and then select **Run**.



- 2) Use the **Browse** button. You will click on **My Computer**, then the **D:** drive (or wherever your CDROM is), then the **ES32** folder, and select **Setup** and then click **Open** button.



- 3) The path in the open field should be something like **D:\ES32\setup.exe**. If it is, click the **OK** button.



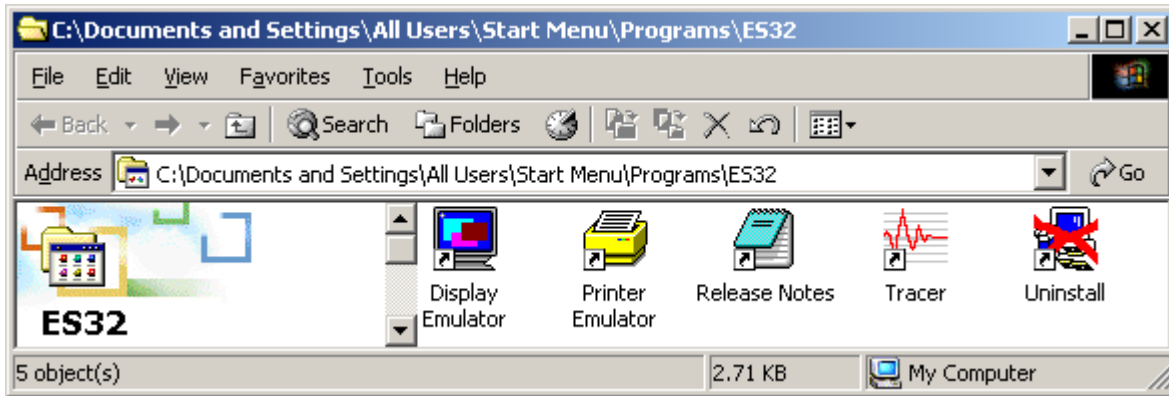
- 4) It will start the **ES32 Setup** and you will get the **"Welcome to ES32"** message. Click the **Continue** button.
- 5) You will get the SOFTWARE LICENSE AGREEMENT. Select the **Agree** button.



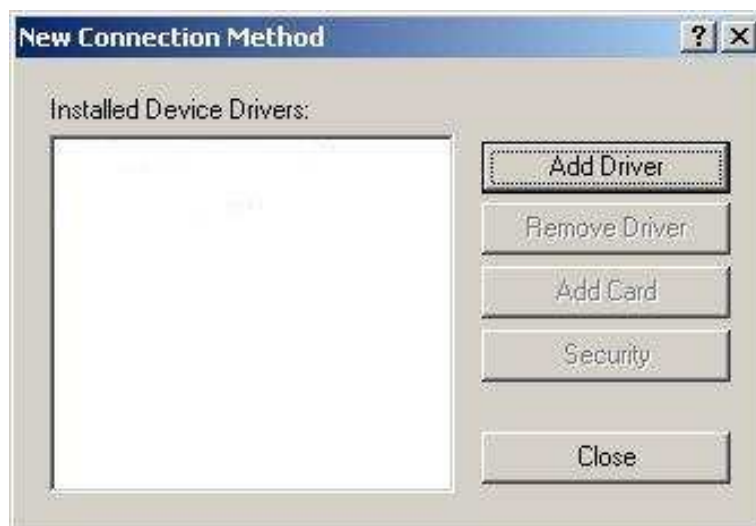
- 6) It will indicate that the installation directory is **C:\program files\es32**. Click the **Continue** button.
- 7) After the "**Setup Succeeded**" message appears, click **OK**.

Configuring ES/SERVER

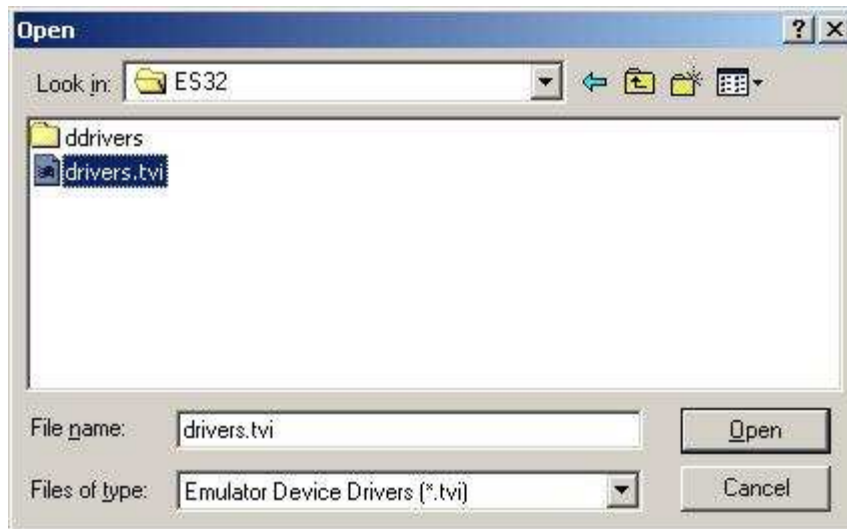
This procedure must be performed when you first start the emulation software after installing the hardware driver and software.



- 1) Double click on the **Display Emulator** icon.
- 2) You will get the message "**Do you want to specify the password now?**" It is recommended to click **NO**. You may assign an administrator password later.
- 3) You will get the message "**There are no device drivers installed to work with the emulator. OK to install now?**" Click **OK**.



- 4) **New Connection Method** window will appear, click **Add Driver**



- 5) Browse to the CDROM drive and go to the **ES32** folder.
- 6) Select **drivers.tvi** and click **Open**.



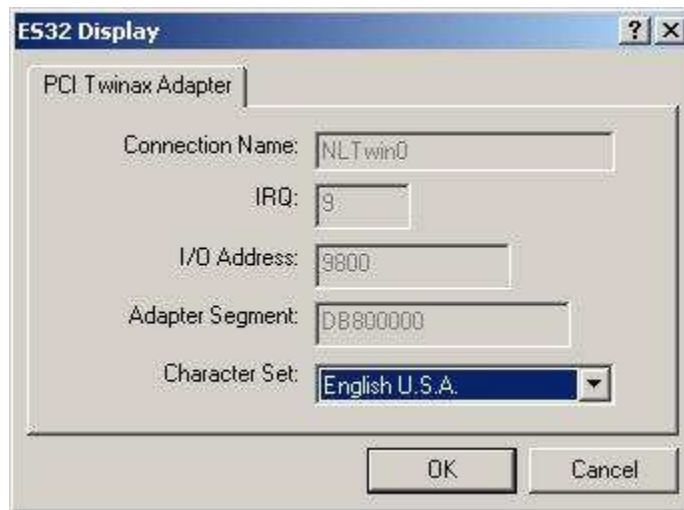
- 7) Click **OK** to the **Find Device Driver** window.



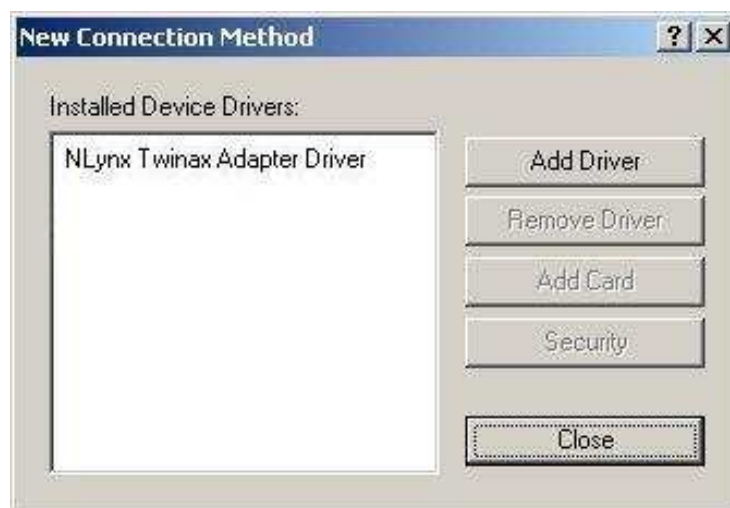
- 8) Click the **Yes** button in the ES32 window.



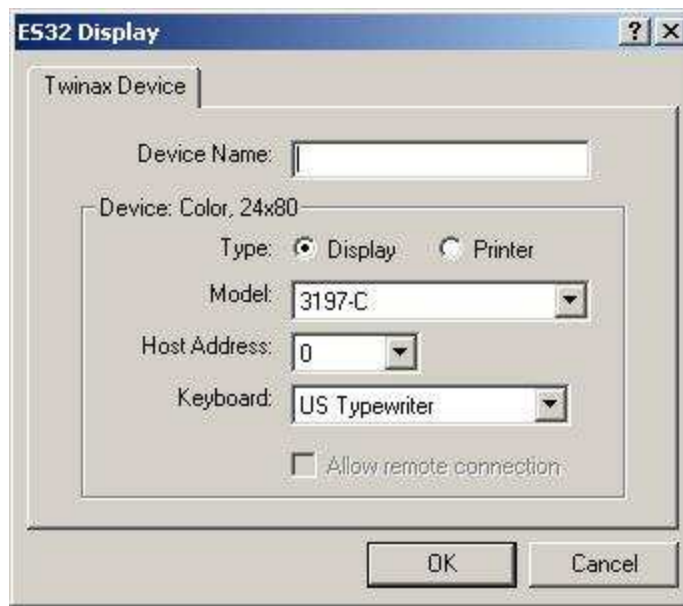
- 9) Click the **OK** button to the next message "**Please note...Do you still want to install this device driver?**"



- 10) ES32 Display window will appear, if you intend to use the English USA character set, click the **OK** button. If not, select the **Character Set**, and then click the **OK** button.



- 11) When the NLynx Twinax Adapter Driver shows, click the **Close** button.



- 12) In the **Device Name** field type in a name you wish to use to identify this device.

SUGGESTIONS: Match the host name or use a name that identifies whether it is a display or printer, and has the host address at the end.

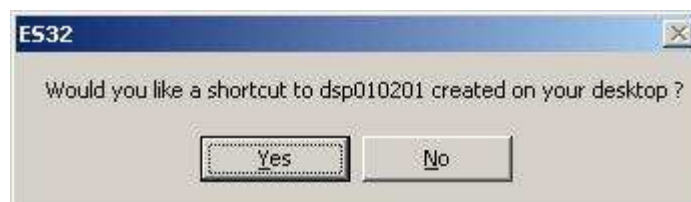
- 13) Choose the type of emulation session, Display or Printer.

- 14) Use the pull-down menu to choose the Model. See Appendix A.

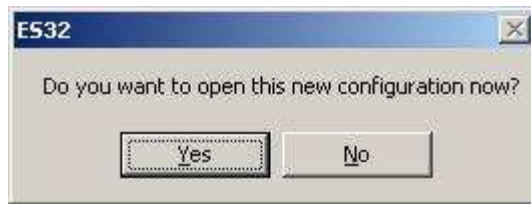
- 15) In the Host Address field select the twinax workstation address of this device.

IMPORTANT NOTE: You must make certain that you do not select a twinax workstation address that has already been used on this twinax port.

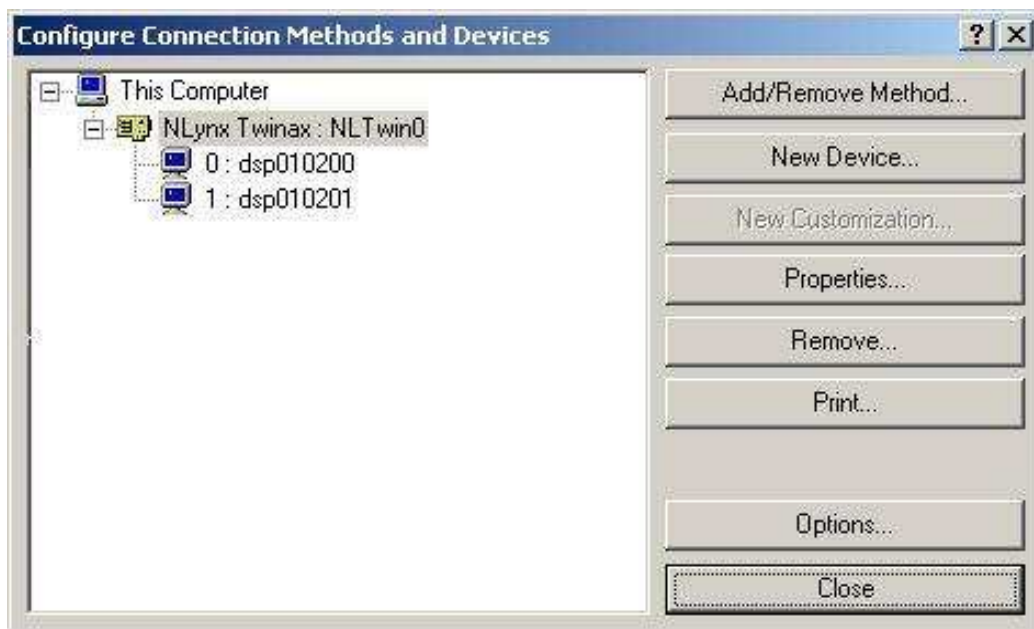
- 16) In the Keyboard field select one of the following: International World Trade or US Typewriter (default). Click OK.



- 17) You will receive the message "Would like a shortcut of this device on your desktop," select the **Yes** or **No** button.



- 18) If you want to add more sessions, click the **NO** button and repeat steps 13-17.
- 19) If you are through adding sessions, select **Yes** if you want to open the session, now. You may wish to answer no, and start the software the same way that you would when starting the program.



When finished, click the **Close** button.



Chapter 3

RUNNING THE EMULATION ON THE ES/SERVER

At this point, you have completed the setup of ES/SERVER and are now ready to run your emulation software on the ES/Server to test each session before installing and testing the ES/Client remote sessions.

Running ES32

Starting a session

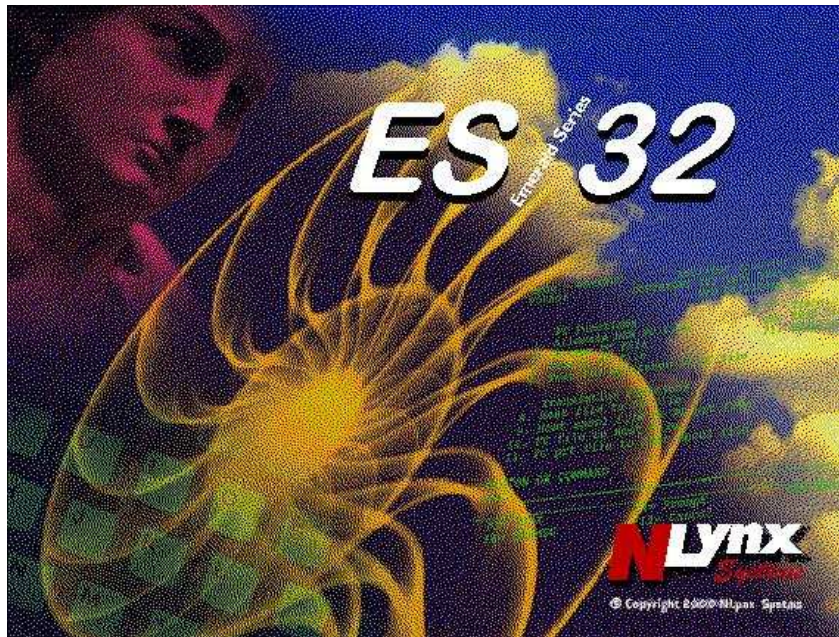
- 1) If you created a shortcut,  double click on it **or** go to **START>PROGRAMS>ES32>** and click on **Display Emulator**. 

NOTE: If the icon has a red triangle on the upper left, it is already being used.

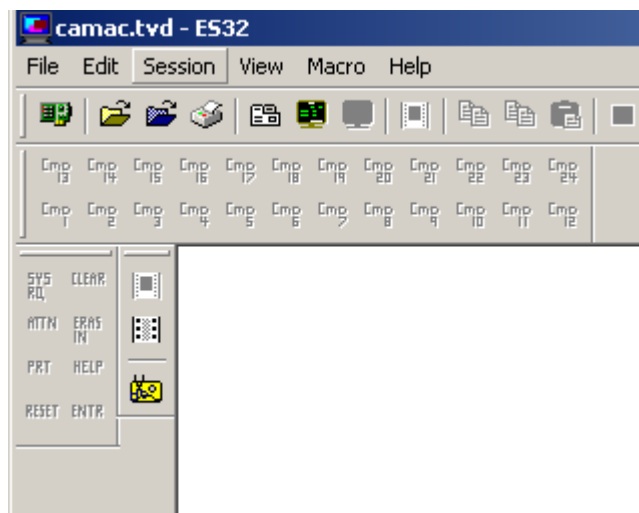


NOTE: If the icon has a big red X over it, it is not able to connect with the host.





- 2) The splash screen will come up first.



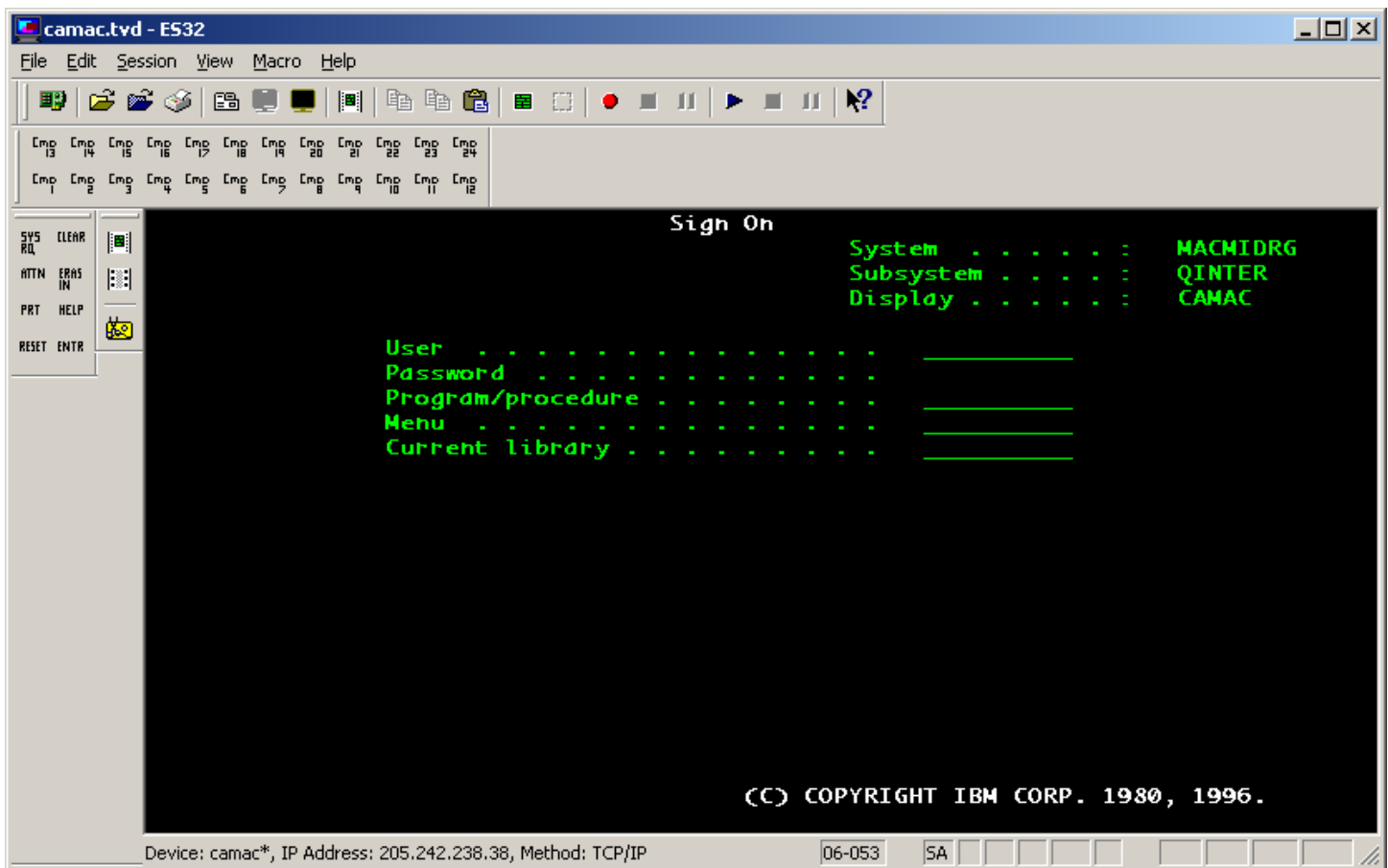
- 3) When the display emulator comes up it should open the last [TVD](#) (Telnet Virtual Display) that was opened. If it does not, and you are at a white screen, then click on the Session menu at the top, and then choose Connect or click the icon that looks like a signon screen (sixth from the left).

Device: dsp06, HostID: 6, Method: N Lynx Twinax

- 4) The device name, twinax workstation address, and connection method will show in the lower left.



- 5) You will first see the dancing terminal on a gray screen.



6) A black signon screen should appear.

- ☐ If you do not get a signon screen, and the cursor is in the upper right, it means that you do not have a good cable connection to the IBM host.
- ☐ If the signon screen does not come up and the cursor is in the upper left, it means that you have connected to the host, but the session is varied off.
- ☐ If the cursor bounces from left to right, it means that you have configured this session on the same twinax station address that another device is already using or that you have configured as the wrong device type.

Check with your IBM Host System Administrator to verify the host address and model type for your workstation.

For further troubleshooting see the [Problem Guide](#).

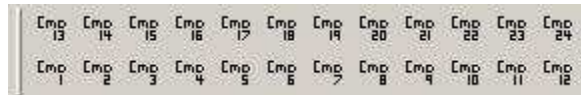


Status Indicators:

- **24-002** indicates the cursor is in the lower left position of the screen.
- **SA** means **Station Available**. If this is showing, but you do not have a signon screen, it would indicate that you are connected, but the controller is down.
- **II** means **Input Inhibited**. You are connected to the host, but an error prevents you from communicating. Pressing Error Reset (Ctrl) will clear this. If it recurs, do an Erase All Input, then Error Reset.
- **IM** is for **Insert Mode**. This allows you to insert new text, push existing text to the right.
- **KS** is for **Key Shift**.
- **MW** indicates that you have a **Message Waiting**.

Tips and tools:

- Click on **View** and then **Function Keys** to get a dropdown of common Function Keys that you can click on with the mouse.



- Click on **View** and then **Command Keys** to get a dropdown of the Command Keys that you can click on with the mouse.

ES/CLIENT INSTALLATION INSTRUCTIONS

These are the complete installation instructions. There may be some minor differences between operating system versions, and so forth that will make these instructions vary somewhat. The important points are highlighted. If you find a question that you do not understand, take the default.

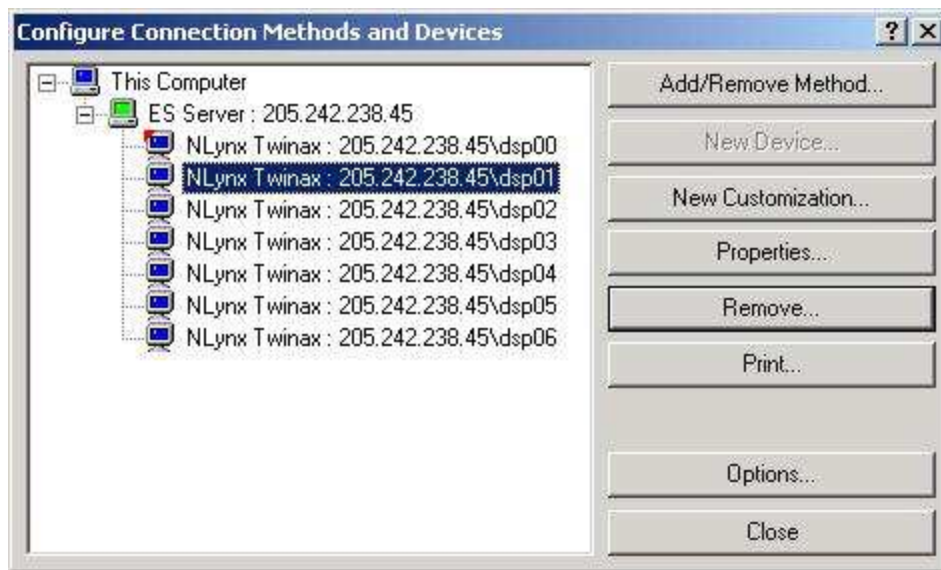
Preparations


If none of the ES32 products were previously installed, you can start on page 2, otherwise, we recommend **removing all** previous versions of ES95 (or ES32) from the computer, by using the uninstall utility found in the ES95 (or ES32) folder.

1. Click the Windows **Start** button.
2. Select "**Programs**", then the **ES32 (or ES95)**, and then finally "**Uninstall**".
3. You should also uninstall the hardware from the Device Manager. (If the Twinax Adapter hardware was been done before, and the driver chosen was wrong, then you must uninstall.
4. Go to the Desktop, and right-click on "**My Computer**".
5. Select "**Properties**", which will bring up the System Properties window.
6. Select the "**Device Manager**" tab.
7. First look for "**Twinax Adapters**", if it does not exist, then look for PCI communication device, or a card that you do not recognize in "Other".
8. Click on the "+" next to Twinax Adapter to show the devices in this group. Click on "**NLynx PCI Twinax Adapter**" to highlight it. Click the "**Remove**" button.
9. In some cases it is necessary to use **Find** or Search (whatever Bill is calling it today) on **PCITwin.VxD** or **NLTwinax.sys** and delete them.

ES/Client Software Installation

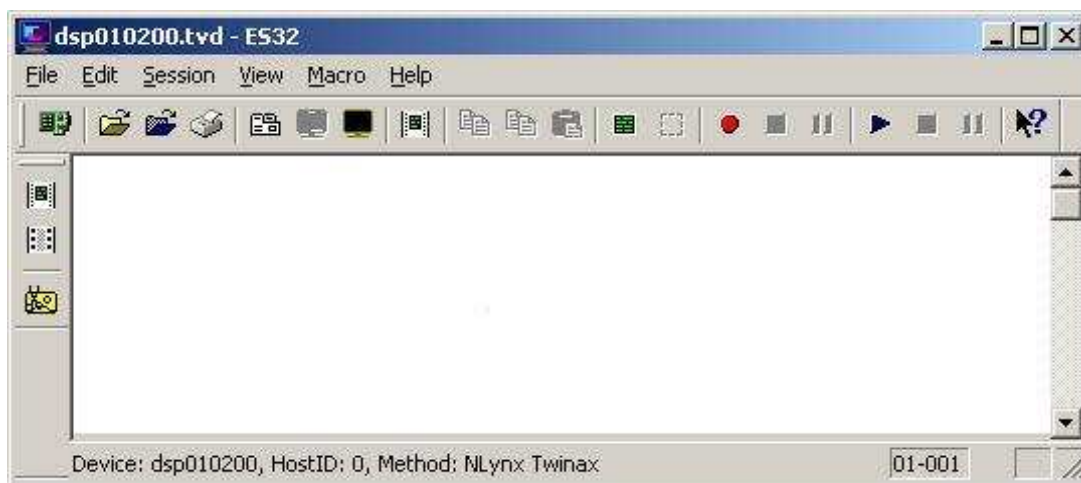
1. After the ES/Server has been installed successfully. You will install the ES/Client software on each of the PCs. Click the Windows **Start** button, and then select **Run**.
2. Use the **Browse** button. You will click on **My Computer**, then the **D:** drive (or wherever your CDROM is), then the **client** folder, then disk 1, and select **Install** and then click **Open** button.
3. The path in the open field should be something like D:\client\disk1\Install.exe. If it is, click the **OK** button.
4. It will say, "**Starting setup, please wait**". It will start the **ES32 Setup** and you will get the "**Welcome to ES32**" message. Click the **Continue** button.
5. Select the **Agree** button, unless you don't, in which case you have a problem.
6. It will indicate that the installation directory is **C:\Program files\ES32**. Click the **Continue** button.
7. After the "**Setup Succeeded**" message appears, click **OK**.
8. It will bring up the **ES32 Client** folder where you will see the **Display Emulator** icon.
9. Double click on the **Display Emulator** icon. It will bring up the ES32 splash screen.
10. It will say "**Do you want to specify the password now?**". It is recommended to select **NO** to the question. You may assign an administrator password later.
11. It will say, "**You have not configured any emulation devices. You must configure at least one device before you can use the emulator. OK to configure now.**" Click **OK**.
12. It will bring up the **Configuration Properties** window. Change the protocol to **TCP/IP**, put in the **Server Name** of the ES/Server. It is important to get this name correct. It is not case sensitive. This is seen on the ES/Server in the **Server / Protocols** window under the **ADDRESS** field. Depending on the ES/Server configuration, this could either be the IP Address of the ES/Server or the network name for the ES/Server.





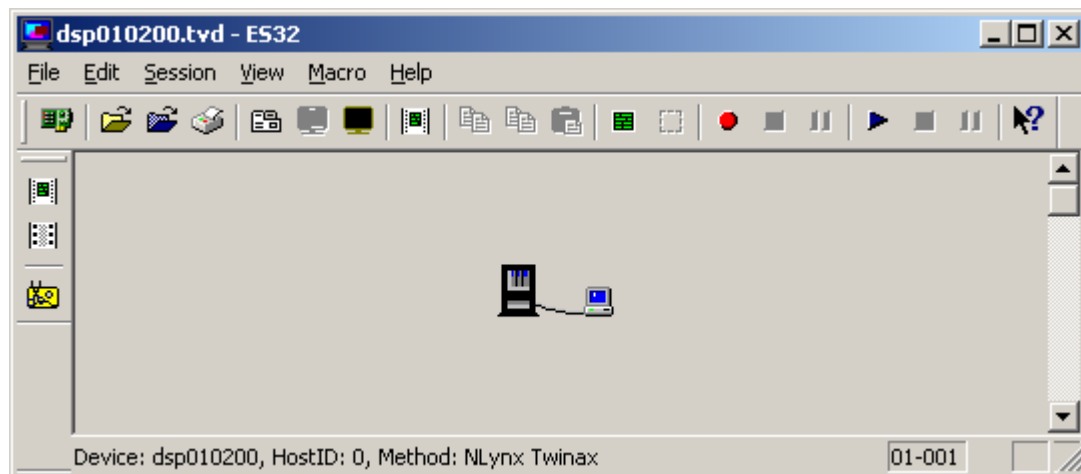
13. Click on the **OK** button. It should close that window and go to the **Configure Connection Methods and Devices** window and show the ES/Server. If you click on the + to the left of the ES Server, it will show all of the sessions that are accessible. The clients with a red triangle on the upper left corner are used by another user. 
14. Click **Close**. It should take you to the "Untitled-ES32" window.
15. If this is the first time that you are connecting, I recommend that you select the **View** menu at the top and put a check in **Command keys**, and then click it again and put a check in **Function Keys**.
16. The next step of the initial configuration is to set the pointer where the TVD files (Telnet Virtual Devices) are located. Select the **Session** and **Properties** menu, and it will bring up the browser. **Browse** to the **C:/Program Files/ES32/servername** folder and select one of the TVD files and double-click it.
17. When the **ES32 Display** menu comes up, select the **General** tab, and then set the **Customization File Location** (at the bottom) to **C:/Program Files/ES32/servername**. Click **OK**.
18. To open a session, click the yellow folder that says **Open** when you 'hover' over it with the cursor. This should now bring up the **C:/Program Files/ES32/servername** folder and point to selectable TVD's. Select one that does not have a red corner on the top left of it.
19. To start the session, click on the icon that looks like a terminal and says **Connect**. Alternatively you can select **Session / Connect**.

ES/CLIENT STARTUP INSTRUCTIONS


1. To start the ES/Client, click the Windows **Start** button in the lower left, then select **Programs / ES32 Client / Display Emulator**. This will bring up the ES32 Display Emulator with a white screen.



2. To open a session, click the yellow folder that says **Open** when you 'hover' over it with the cursor. This should now bring up the **C:/Program Files/ES32/servername** folder and point to selectable TVD's. Select one that does not have a red corner on the top left of it. 
3. Depending on whether the properties are set to **Automatically connect when opened** or not, the session may need to be started. To start the session, click on the icon that looks like a terminal and says **Connect**. Alternatively you can select **Session / Connect**. 



ES/Client Startup Instructions When Using a VPN link

1. Establish your Dialup Connection to your ISP. (AOL, MSN, for example)
2. Start the VPN Client, by right-clicking on the SSH Sentinel icon on the task bar, then choose **Select VPN** and put a check in the VPN. 
3. To start the ES/Client, click the Windows **Start** button in the lower left, then select **Programs / ES32 Client / Display Emulator**. This will bring up the ES32 Display Emulator with a white screen.
4. To open a session, click the yellow folder that says **Open** when you 'hover' over it with the cursor. This should now bring up the **C:/Program Files/ES32/servername** folder and point to selectable TVD's. Select one that does not have a red corner on the top left of it.
5. To start the session, click on the icon that looks like a terminal and says **Connect**. Alternatively you can select Session / Connect.


Session Properties

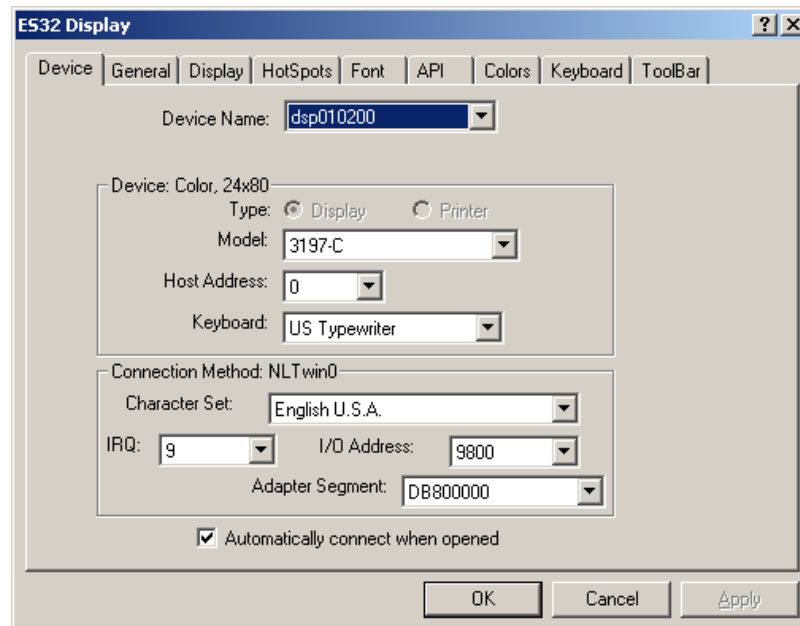
Session Properties can be configured at the ES/Server or the ES/Client. In order to change the look and/or properties of anyone who uses the sessions, bring the session up on the ES/Server and make the changes there. This will establish the default.

Changes must be made on each session individually.

Configure the properties of the emulation sessions by clicking on the **Session** menu at the top of the screen and selecting **Properties**.

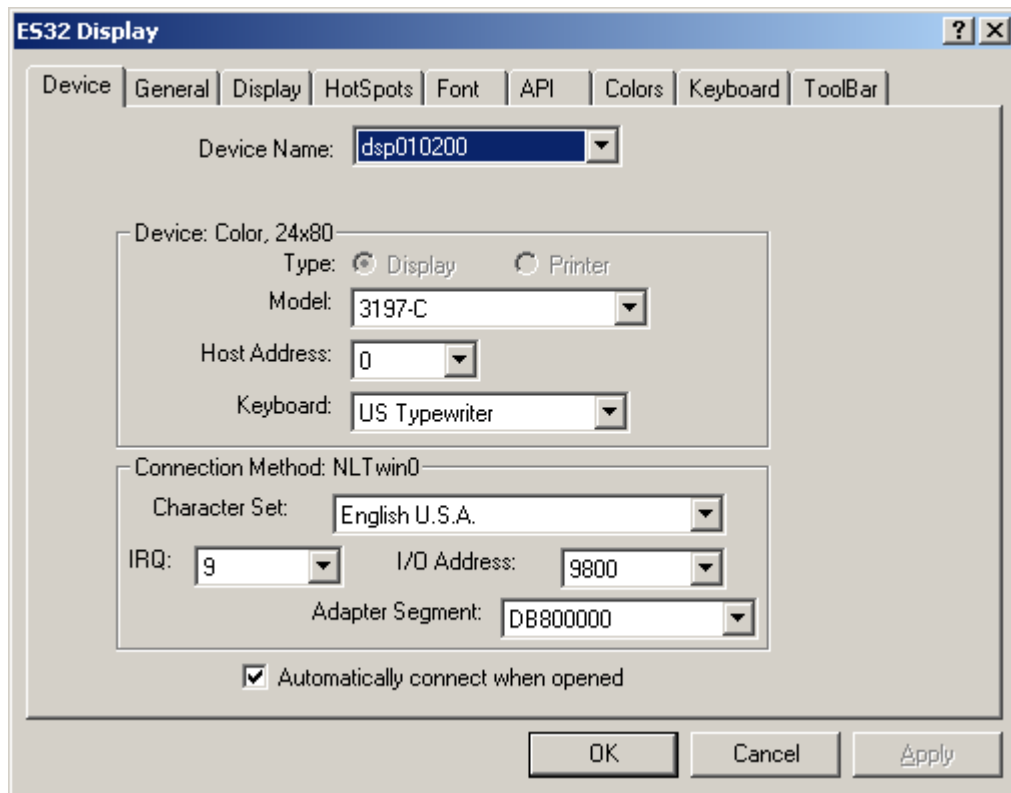


You can also click on the Properties icon  to access the ES32 Display window.



NOTE: For many of the properties, you must perform Session – Disconnect before you can change it.

Device Settings:

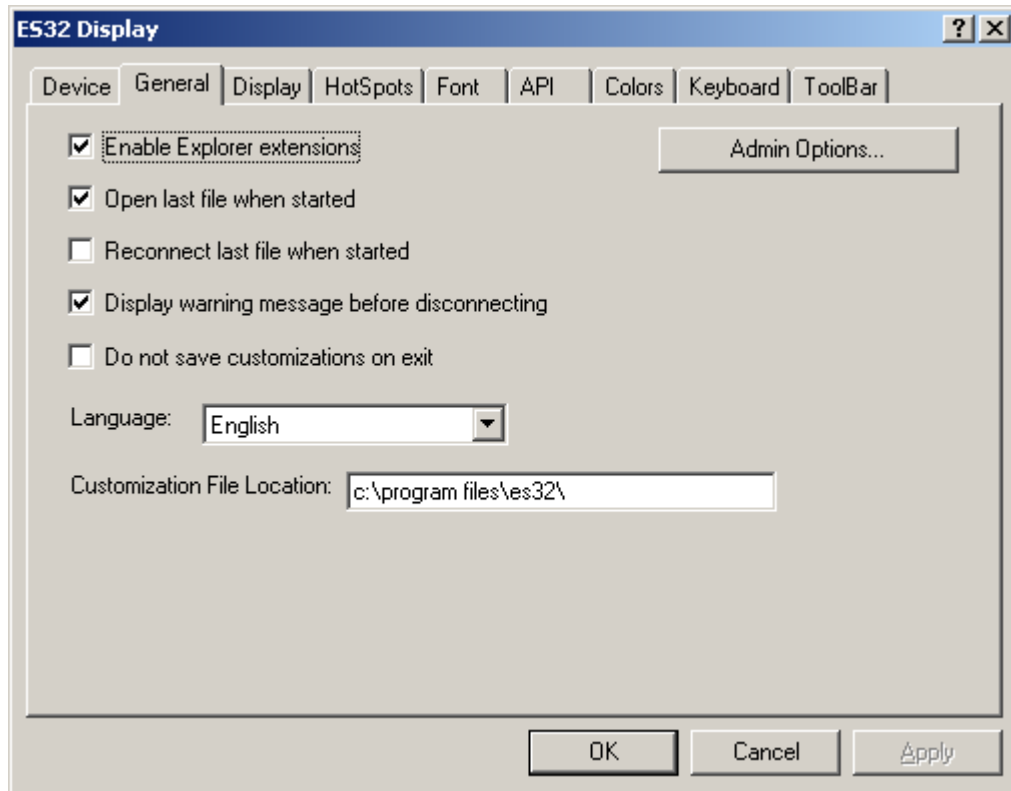


The Device Settings page shows the settings that you configured in the Configuration. You cannot alter the settings on this page with the exception of **Automatically connect when opened** if you have the session open.

To alter these settings, close the **ES32 Display** window (if it is open), then either click on the icon that looks like a dark terminal and says Disconnect when you hover the mouse over it, or click on Session and select Disconnect. After disconnecting the session, you can modify your parameters either by Session – Properties or by File – Configure, then opening the session from the Configure Connection Methods and Devices window.



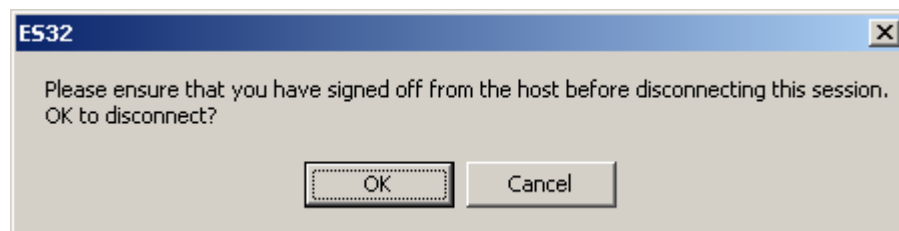
General Settings



The option “**Enable Explorer extensions**” allows you to create shortcuts to [TVD](#) and [TVP](#) files.

If you open the Display Emulator from the Start / Programs / ES32 / Display Emulator, the option **Open last file when started** will point to the last TVD or TVP that was open.

Reconnect last file when started opens the session.

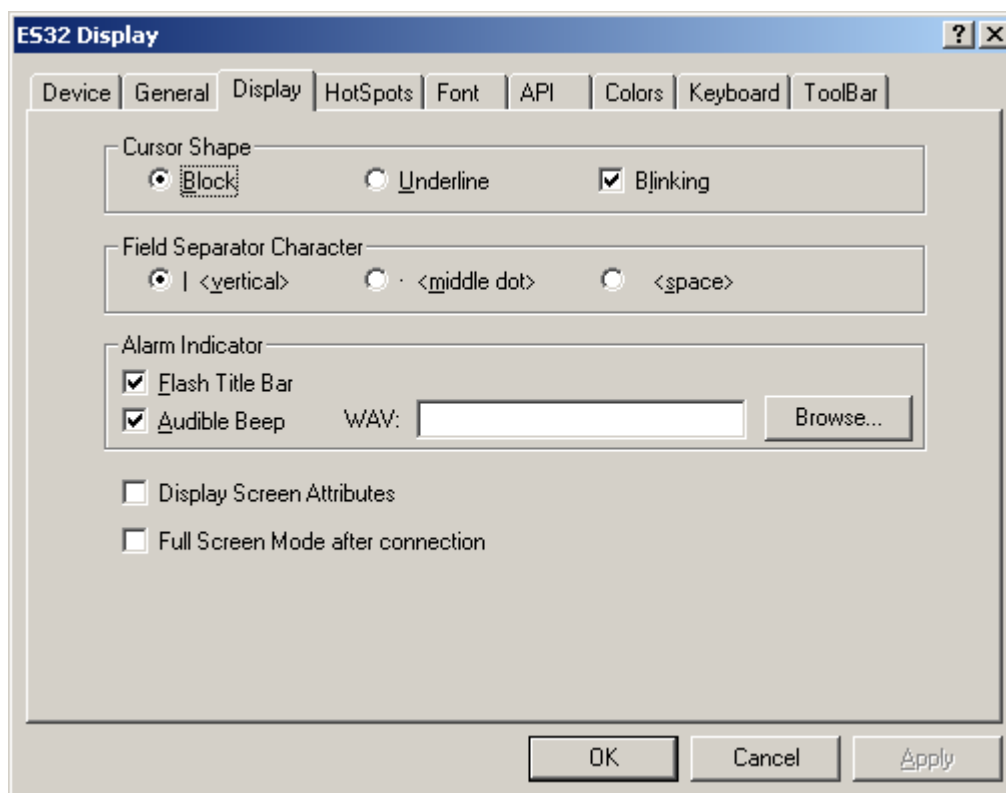


If you shut down a session without logging off, your host may require that the System Administrator vary the session off and back on. **Display warning message before disconnecting** will give the above warning to remind you to log off the host so that you will be able to log on again without contacting the System Administrator.

Do not save customization on exit is for when you are sharing a session with other people or when you do not want a user to change their settings.

Admin Options allow an Administrator to lock options down.

Display options



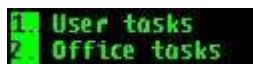
Display options are self-explanatory. Display Screen Attributes is a troubleshooting tool.

If you enable **Full Screen Mode after connection** you will not have your Main Toolbar, Custom Toolbars, Command Key pad, or Function Key pad. If you enable Full Screen and wish to get the other functions back, right-click inside the screen and take the check out of Full Screen.

HotSpots

If HotSpots are enabled, you can click on menu options, or command options that are showing on the screen, using the mouse.

Menu HotSpot Example:

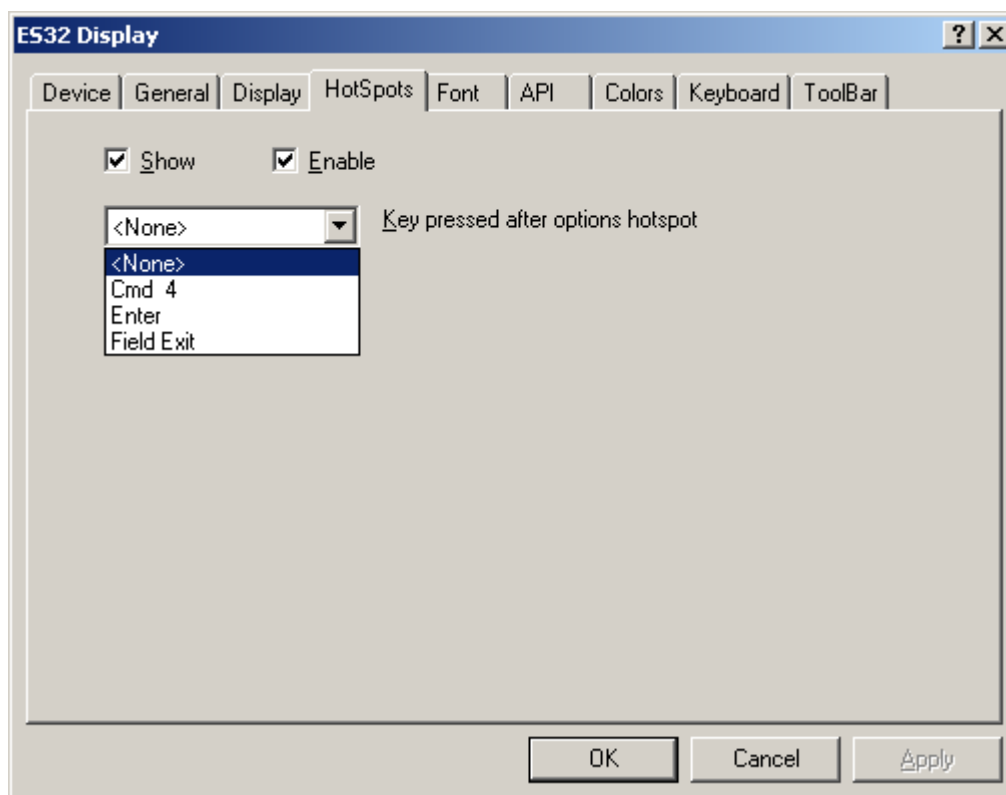


You can click on the number 1 or click on "User tasks", to bring up the IBM "User Tasks" menu.

Command HotSpot Example:



Click on the F3 or Exit, to perform the Exit command.



You can select whether Command and Menu HotSpots will be show in this window.

Menu HotSpot Examples:

Showing

```
1. User tasks
2. Office tasks
```

Not showing

```
1. User tasks
2. Office tasks
```

Command HotSpot Examples:

Showing

```
F3=Exit F4=Prompt
F23=Set initial menu
```

Not showing

```
F3=Exit F4=Prompt
F23=Set initial menu
```

You can also select whether to add a CMD 4 (usually used for a prompt), an Enter, or a Field Exit after using any [HotSpot](#).

To enable Hotspots

1. From the Session menu, click Properties.
2. Click the Hotspots tab.
3. Click Enable.

NOTE: Clicking Show highlights all Hotspots, regardless of whether they are enabled or not.

To display Hotspots

1. From the Session menu, click Properties.
2. Click the Hotspots tab.
3. Click Show.

NOTE: The Hotspots are displayed even if they are currently disabled.

To hide the HotSpots, remove the check from Show.

To hide Hotspots

1. From the Session menu, click Properties.
2. Click the Hotspots tab.
3. Remove the check from Show.

NOTE: If the Hotspots are hidden, they are still active and available to use as long as they enabled.

To use Hotspots

1. Start the emulator and sign on to the host.
2. To enact a command key Hotspot, click on the command key at the bottom of the host screen.
3. To enact a menu item Hotspot, click on the menu item number on the host screen.

NOTE: For menu item Hotspots, the cursor must be on the host command line.

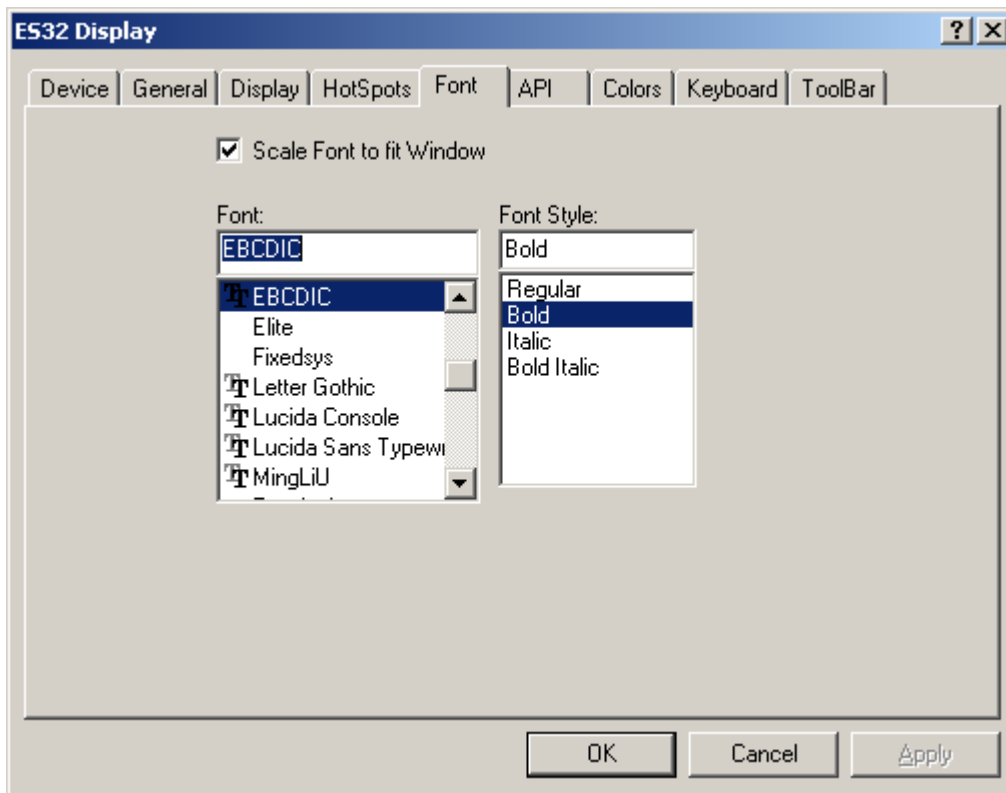
To add a keystroke after a Hotspot

1. From the Session menu, click Properties.
2. Click the Hotspot tab.
3. Select the keystroke you want to be added after a Hotspot is enacted.
Select <None> for no keystroke to be added after the Hotspot is enacted.

NOTE: The keystroke you select will be added after all Hotspots you enact.

NOTE: See the [Colors](#) screen to change the colors of Menu or Command HotSpots.

Font



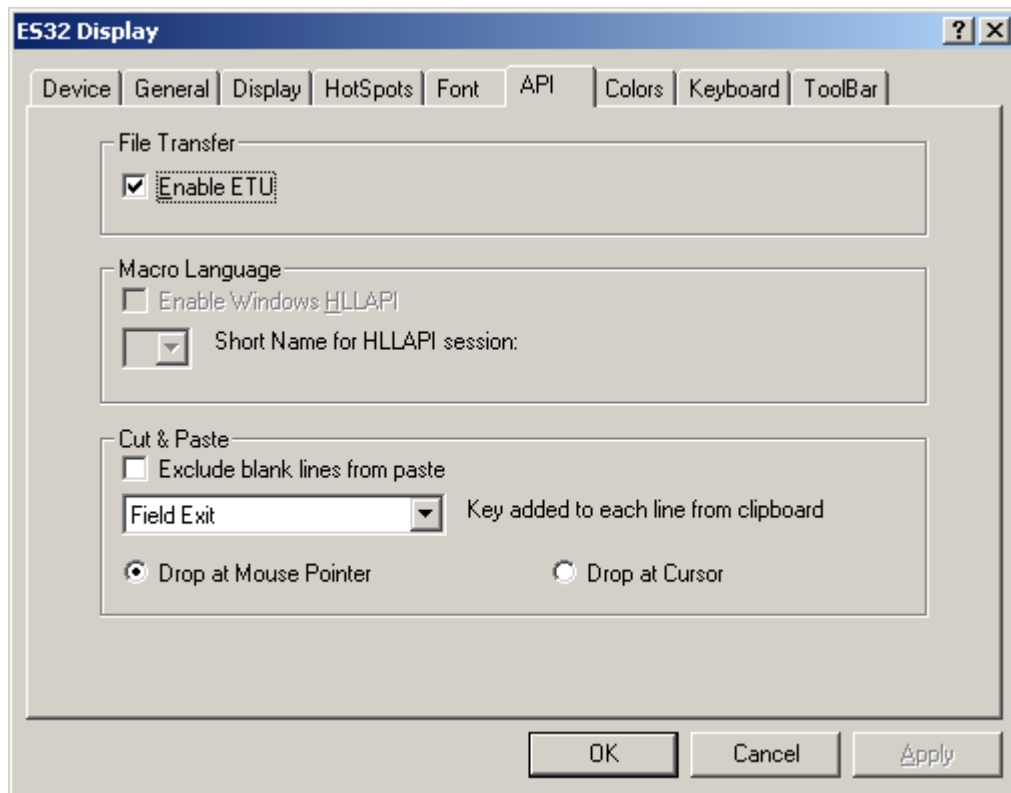
This is a fun screen to play with.

ES32 uses [monospaced fonts](#). They can either be screen bitmap fonts or [TrueType fonts](#). The fact that the font is monospaced is encoded in the font descriptor. ES32 will go through the list that Windows have and select only the monospaced fonts for the user to select.

TrueType fonts are really meant for printing. For display purposes, the font installer will create a *.FOT file that contains the screen bitmap fonts.

Most fonts that you find in Windows are proportional fonts. They cannot be used in ES32 because a 5250 terminal display only uses monospaced fonts. Monospaced fonts are essentially fonts where the width of each character is the same. That is, the width of an "I" is the same as a "W". Terminal emulators cannot use proportional fonts; otherwise, tabular data will be out of alignment.

API

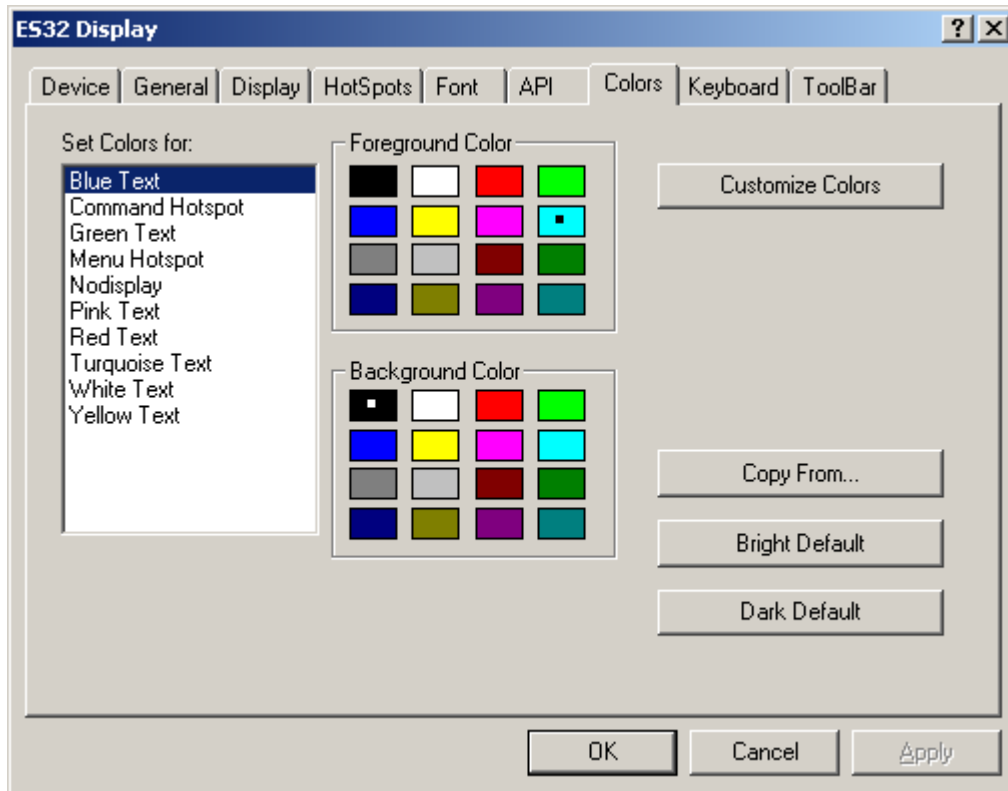


The **Enable ETU** must be checked if you are using [ETU](#). Leaving it enabled if you do not have or use ETU does no harm.

Macro Language is for use with [HLLAPI](#). In order to use this a C Language programmer can obtain the Advanced Developer's Kit from Ringdale. Contact technical support for this.

Cut & Paste allows advanced functionality to normal cut & paste.

Colors



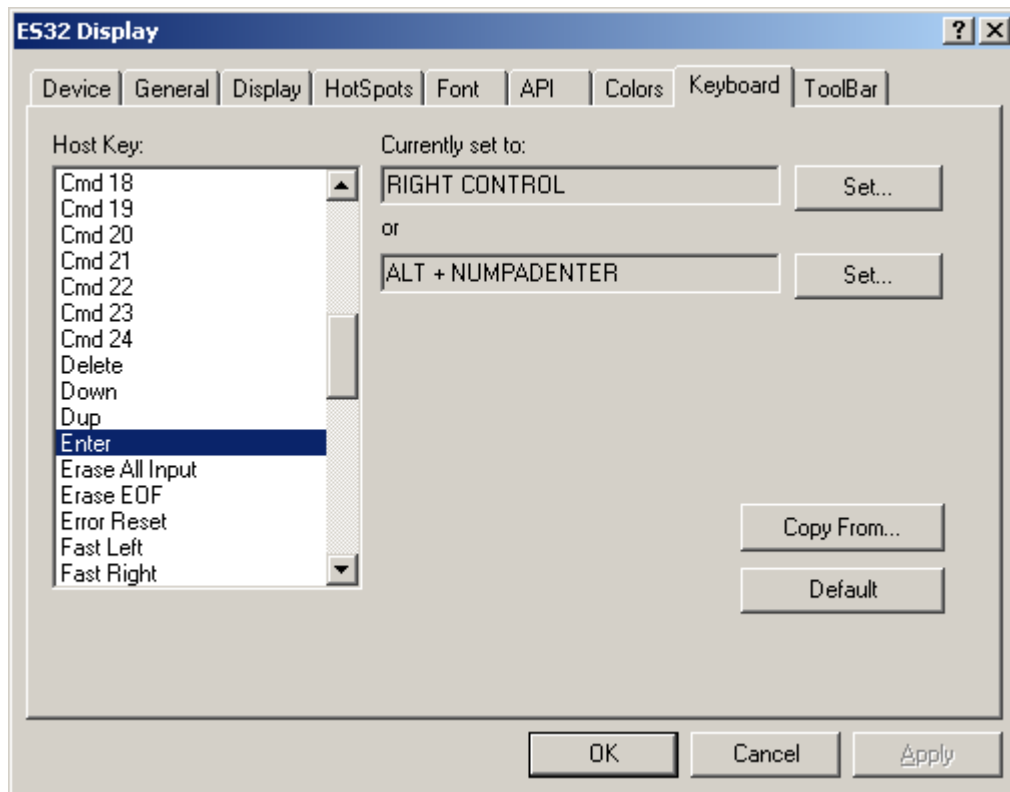
Click on the type of text that you would like to change the color of, and then select the foreground color and background.

NOTE: Do not use the same color for your foreground and background, or your data will be invisible.

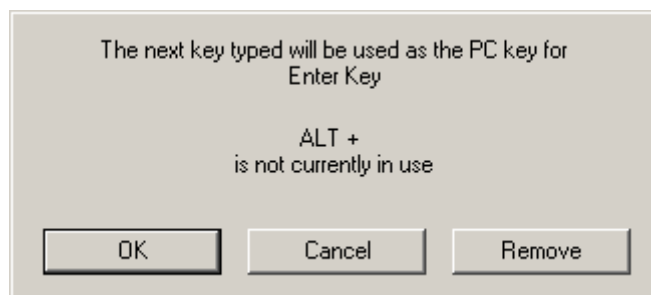
Keyboard

The default ES32 keyboard is laid out like an IBM 5250 keyboard. The Enter key on an IBM 5250 keyboard is positioned where the Ctrl key is on a standard PC keyboard. If you would like to change it so that the key names match the functions, or if you would like to figure out where one of the IBM 5250 functions are mapped, use these instructions:

- Click on the **Sessions** menu and select **Properties**.
- Click on the **Keyboard** tab.
- From the list of **Host Keys**, select the one you want to see or re-map.

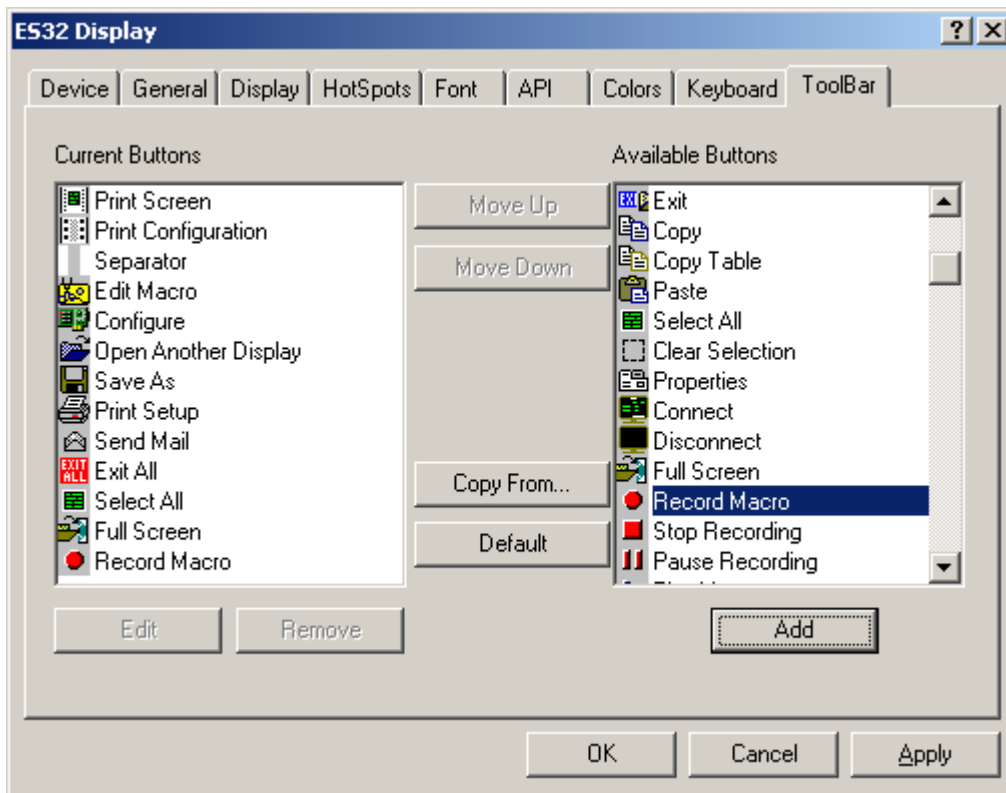


- If the host function is currently mapped to your keyboard, its key combination will display under **Currently Set To** on the right side of that window. In the above example, it shows that Enter is mapped to the right Ctrl key.



- If you would like to change it click **Set**, then press the key, or a key combination with Control, Alt, or Shift that you would like to remap it to. It will inform you as to whether that combination is already in use. If you choose to continue, click **OK**.

Toolbar



In the toolbar menu you can add buttons for functions that you use regularly and desire fast access to.

After you add them, they will show on the side of your emulation screen.

Adding another Display session

- 1) If it is not already started, start the Display Emulator. Start/Program Files/ES32/ Display Emulator.
- 2) Disconnect any open sessions. Click the **Session** menu at the top of the ES32 screen, and then select **Disconnect**.
- 3) Click the **Configure** icon, (or select **File**, then **Configure**) to bring up the **Configuration Connection Methods and Devices** window.
- 4) Click once on **NLTwinax: NLTwin0** to select it and the **New Device** button will become enabled.
- 5) Click on the **New Device** button to bring up the **Configuration Properties** window.
- 6) Give it a name. You cannot choose a name that is in use on this PC already. You cannot use spaces. It is recommended that you put in a name that has the Host Address at the end of it. For example, if the application that you use is MAPICS, use MAPICS0.
- 7) Select **Display**.
- 8) Select the type of display or printer. This is not critical. If you have questions, ask your AS400 administrator or use the default.
 - 3197C is an 80 wide color terminal
 - 3197D is a 132-wide color terminal
 - 5291 is a good terminal for older systems
- 9) Select an unused **Host Address**. On every twinax port (or cable run) there are seven '**work station address**' from 0 to 6. If you are checking this on the AS/400 using Display Device Description, this is identified as the "**Switch Address**" on the AS/400. Sometimes you need check the configuration of each device that is connected to the same Twinax [daisy chain](#).

When you are done configuring it, click **OK**.

Using Macros



With the emulator you can create macros that let you perform tasks on the host. A macro is a set of instructions that you record and then playback. Macros make it easy to perform complicated tasks or tasks that you do over and over. You can start and stop the macros from the Macro Menu or by clicking on the

Macro tool buttons:

To record a macro

From the Macro menu, click Record or click the button.

Perform the steps you want to record. While you are recording, any keys you press are captured and saved for when you play back the macro.

If you want to pause the macro while you are recording, click on Pause from the Macro Record menu.

NOTE: You might want to pause in the middle of macro if you are recording a task that contains sensitive information, like a sign-on procedure containing a password. You can pause the macro and, after entering your password, click Record again to begin the recording the macro again.

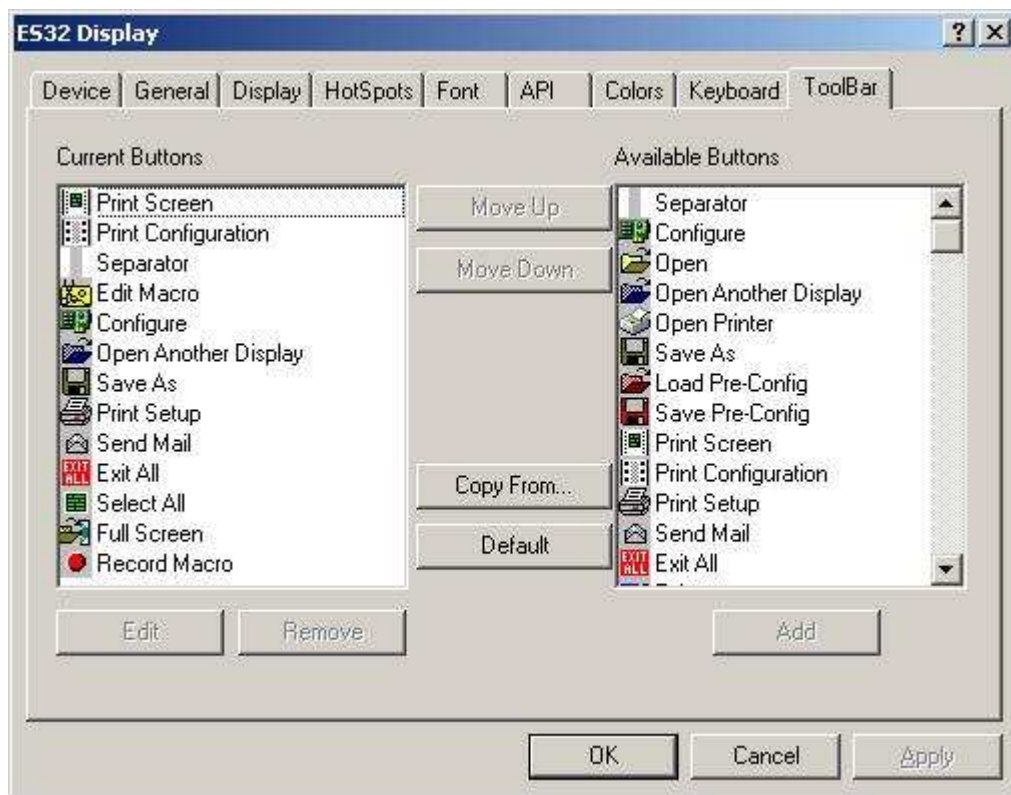
When you are done, from the Macro menu, click Stop or click the stop button.

To play back a macro

- 1) From the **Macro** menu, click **Play** or click on the toolbar play option.
- 2) Click the macro that you want to play back.

NOTE: You can assign macros to the Toolbar. To play back a macro, just click the Toolbar button assigned to the macro.

Adding a macro to the toolbar



- 1) On the **Session** menu, click **Properties**.
- 2) Click the **ToolBar** tab.
- 3) Under **Available Buttons**, scroll down until you come to the list of Macro Buttons.
- 4) Click one of the macro buttons.
- 5) Click the **Add** button.
- 6) Type a name for the macro.
- 7) Type the macro file name or select Browse and choose the macro file from the list.
- 8) Click the **OK** button.
- 9) Click the **OK** button again.

To pause a macro



1. During playback of a macro, click **Pause** from the **Macro** menu under Play or click the
2. Click Play to resume playback of your macro.

To edit a macro

1. On the Macro menu, click Edit.
2. Click the macro you want to edit.

NOTE: Macro files have .tvm extensions.

3. Click Open.

The emulator launches the Notepad application. You will edit the macro from there.

4. Edit the macro by:

Adding SEND, PAUSE, or HOSTKEY commands or changing the existing text in an ASCII string.

Adding LABEL and GOTO statements to make it loop.

5. Save the macro.

NOTE: You may find it easier to record a new macro than to edit an existing one.

EXAMPLE:

```
HOSTKEY (Enter)
HOSTKEY (Enter)
HOSTKEY (Enter)
LABEL START
SEND 1
HOSTKEY (Enter)
SEND 1
HOSTKEY (Enter)
SEND 1
HOSTKEY (Enter)
HOSTKEY (Cmd 12)
SEND 2
HOSTKEY (Enter)
HOSTKEY (Cmd 12)
GOTO START
```


The ES32 Printer

IBM's 5250 printers are very different from the rest of the world's printers. IBM printers connect to the IBM host using [Twinaxial](#) cable, whereas the rest of the printers generally connect using serial or parallel cables. IBM printers only accept EBCDIC data, whereas the rest of the world's printers accept ASCII data. IBM printers follow the IBM 5250 protocol, a complicated form of communications that does addressing, error-correction, and so forth, whereas the rest of the world's printers use more basic flow control methods. The data formatting commands are completely different between IBM and the rest of the world.

Three main things control the data formatting, the printer you are emulating, the printer you have, and where you plan to control the output.

Adding and configuring an ES32 Printer

This is the complete process for adding the ES32 printer for the ES/Server card.

- 1) First you must determine what Twinax station address you are going to use for the card. The IBM Twinax line supports seven station addresses from 0-6 and if you use an address that another device is already using, you will bring the whole Twinax line down.
- 2) Determine what IBM printer you want the ES32 to emulate. If you only want portrait printing, chose 5256, if you only want landscape, choose 5225, and if you want both choose 5219.
- 3) Open your ES32 **Display Emulator**.
- 4) Close the sessions down by signing off the host and then selecting **Session – Disconnect**.
- 5) Select the **File** menu, then **Configure**, and it will bring up the **Configure Connection Methods and Devices** window.
- 6) Select the **Nlynx Twinax :NLTwin#** card, by clicking on it, then click on **New Device**. It will bring up the **Configuration Properties** window.
- 7) You must give it a name, any name, in the **Device Name** field.
- 8) Select the **Printer** (vs. Display) dot.
- 9) Select the **Model** (See Appendix B for more information on what printer to emulate).
 - 5256 is a portrait printer
 - 5225 is a landscape printer
 - 5219 is a page printer that can do both
- 10) Select the **Host Address**, making certain not to choose an address that another device is already using.

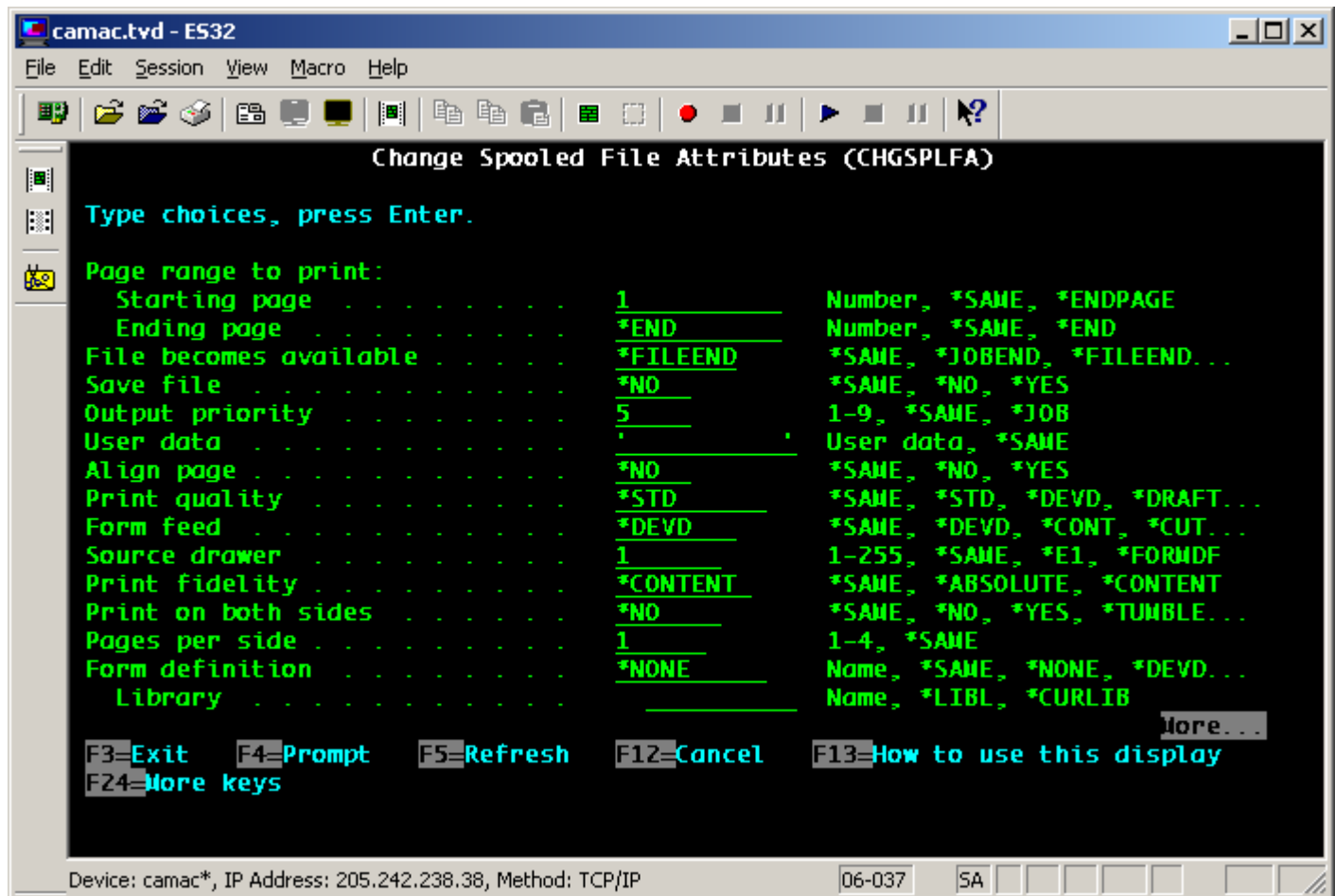
To Open A Printer Session

- 1) On the **File** menu, click Open Printer.
- 2) In the **Look In** box, click the drive that contains the session you want to open. This will usually be the C: drive.
- 3) Below the **Look In** box, click the folder that contains the session you want to open. This will usually be the C:\Program files\ES32 folder.
- 4) Click the display session name, or type it in the **File Name** box.
- 5) Click **OK**.

Print Data Control

The ES32 software is very versatile in controlling the data to the printer. The default is to not change the data at all.

Formatting that occurs on the host



First the data is formatted by the application that generated the data. MAPICS, QRY or SEU for example. You can select the form size in length and width, the form type, and the number of copies. These parameters can be adjusted in the spool queue as well.

AS400 Host Print Transform

If you have an AS/400, there is a parameter that can be enabled, called Host Print Transform. Host Print Transform is a way to allow the AS/400 to control all aspects of the print job, [CPI](#), [LPI](#), and special features. It allows you to select the specific Manufacturer, Type, and Model of your printer. If this is enabled, the data will be sent in “**transparent ASCII**” from the AS400. The AS400 will have already formatted the data for your printer model. Control is then handled at the AS/400 application. This method works quite well in applications where the user needs complete control over their device.

On your AS400, Using the **CHGDEVPRT** command, set:

```
Host print transform . . . . . *YES
Manufacturer type and model. . * YourPrinter
```

Put your cursor on the **Manufacturer type and model** line and press **F4** to see your choices for Manufacturer type and model. You can then press **F1** for more specifics. You do not have to match a printer model exactly. Quite often a printer will support other emulations (for example IBM Proprinter, or PCL) and you can set the Manufacturer type and model parameter to match. See Appendix C for help

If you use Host Print Transform, you should go to the Windows printer setting and change the Spool Settings to Print Directly to Printer.

To change the spool settings, follow these steps:

- 1) Click the **Start** button, point to **Settings**, and click **Control Panel**.
- 2) Double-click the **Printers** icon.
- 3) Use the **right** mouse button to click the printer icon, and then click **Properties** on the menu that appears.
- 4) For Win95, Win98, or WinME, click the **Details** tab, and the **Spool Settings** button.
- 4) For Windows XP or Windows 2000, click the **Advanced** tab.

Select **Print directly to printer**.

Formatting that occurs in ES32

ES32 first looks at the data to see if **"transparent ASCII"** (Host Print Transform enabled) is sent.

If **"transparent ASCII"** (Host Print Transform) is **enabled**, the data is already formatted for a specific printer and is ported straight to the printer port whether it is a parallel port, USB port, network port, or serial port.

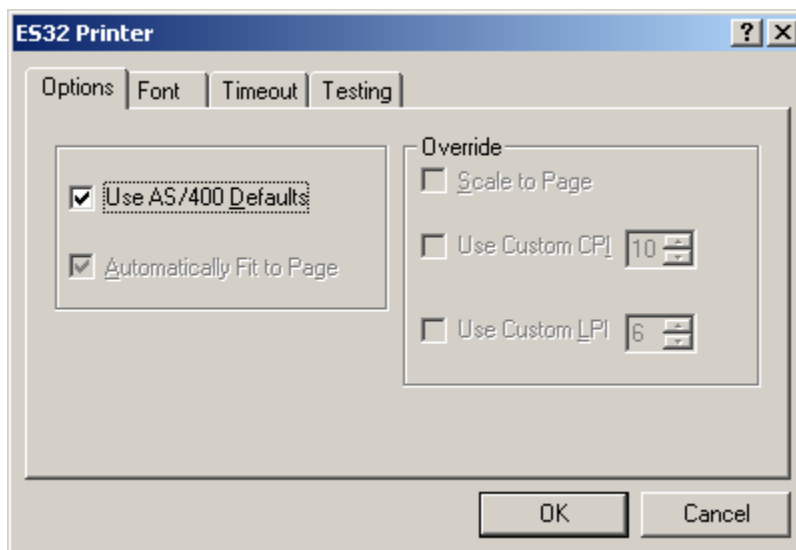
NOTE: If the printer that the data is sent to is not the same as the model that is selected in the AS/400 manufacturer type and model, unpredictable results may occur.

NOTE: If Host Print Transform is enabled, the ES32 Properties – Option and [Font](#) are disabled.

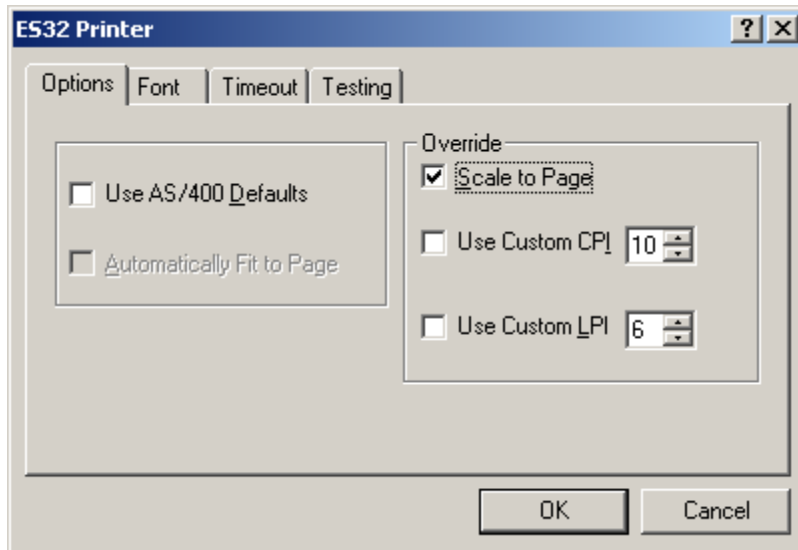
If **"transparent ASCII"** (Host Print Transform) is **not enabled**, then ES32 converts the EBCDIC data to ASCII and puts the data to a temporary 'document' based on the [SCS](#) formatting.

Use AS/400 Defaults:

When this option is selected the emulator will scale and rotate each print job so that it will best fit onto a piece of paper. Selecting this option may override the paper orientation you have selected from Page Setup. If ES32 is configured to use AS/400 defaults, once a full page of data is received, that data is sent to the Microsoft [PAPI](#), where the data is formatted for the printer that you have selected.



Not Using AS/400 Defaults:



If you take the check out of the "Use AS/400 Defaults" you can select "Scale to Page" and define Custom [CPI](#) and [LPI](#). If you select Scale to Page, you must define the Page Setup. This option does not work well if you are sending different types of print jobs.

- 1) In your ES32 printer window, click on the **Online** button to take the printer offline.
- 2) Click on the **Properties** button.
- 3) Under the **Options** tab, take the check out of the "Use AS/400 Defaults".
- 4) Select either "**Scale to Page**" or define specific parameters.

NOTE: If you select Scale to Page, you must further select define the **Page Setup**.

Getting Help

For help on running your emulation software you can use the context sensitive on-line help, built into the application.

Terminal Device Type Codes

5250 Terminal Model	System 36 Device Code	Monitor Type	Size
3179-2		Color	
3180-2	11	Monochrome	27 x 132
3196	15	Monochrome	24 x 80
3197-C	26	Color	24 x 80
3197-D or -W	16	Monochrome	27 x 132
3477-FC			
5251	00	Monochrome	24 x 80
5251-11	01	Monochrome	24 x 80
5291-1	00	Monochrome	24 x 80
5291-2	10	Monochrome	24 x 80
5292-1	20	Color	24 x 80
5292 model 2	21	Color	24 x 80

System 36 Printer Device Type Codes

5250 Printer Model	System 36 Device Code	Format	Character Size
4214	PC or EA	Portrait	10 CPI
5256	PB or AC	Portrait	10 CPI
5224	PC or BB	Landscape	10 or 15 CPI
5225	CD	Landscape	10 or 15 CPI
5219	3P	Both	10, 12,15 CPI
3812	3P	Both	10, 12,15 CPI

ES32 supports emulation for the following IBM printers:

5256 Model 1,2, or 3	4210 Model 1	5224 Model 1 or 2
5225 Model 1,2,3, or 4	5219 Model D01	3812 Model 1 (SCS Mode)

The characteristics of these IBM printers range from very simple (IBM 5256 with single line and character densities) to very sophisticated (IBM 5219 with full word processing support). The following is a brief summary of features available for each emulated printer as viewed from the host's point of view.

5256 Printer

This is the simplest printer in the line. It supports only 10 [CPI](#) and 6 [LPI](#). A switch on its front panel enables you to change to 8 LPI, but no software control is provided for this function. The System/3X or AS/400 knows these limitations and ignores any request to alter the character or line density values.

The only available feature for this printer is form control. The page length must be specified as the number of lines to be printed per page, while the page width must be specified as the number of characters per line, up to a maximum of 132 columns. If any attempt is made to print beyond the horizontal limit, the printer inserts an automatic NL (New Line). An attempt to print beyond the vertical limit introduces an automatic FF (Form Feed).

The [OCL](#) PRINT procedure on System/36 and printer files on System/38 and AS/400 are partially supported due to printer limitations, allowing only change of the page length.

If used under DW/36, TM/38 or Office/400, bold, underline and overstrike are available since they are achieved by overprinting. This printer emulation is best suited for applications that do not need different line and character densities or advanced features.

The 5256 printer only supports 10 characters per inch. This character density is mapped into a [font](#) on the ASCII printer as specified on the workstation configuration menu.

When configuring the System/3X or AS/400 use the following device codes for this type of printer:

System/34	P
System/36	PB or AC
System/38	DEVTYPE (5256) MODEL (3)
AS/400	TYPE (5256) MODEL (3)

5224 and 5225 Printers

These printers are among the faster printers available for the System/3X environment. Available features include form control, variable character density, and variable line density.

The page length must be specified as the number of lines to be printed per page, while the page width must be specified as the number of characters per line, up to a maximum of 132 columns at 10 CPI and 198 columns at 15 CPI. If an attempt is made to print beyond the horizontal limit, the printer inserts an automatic NL (New Line). An attempt to print beyond the vertical limit introduces an automatic FF (Form Feed).

The valid character densities are 10 and 15 characters per inch. These character densities are mapped into [fonts](#) on the ASCII printer as specified on the workstation configuration menu.

A fairly wide variety of line density values are available. The most common are: 72 [LPI](#), 48 LPI, 24 LPI, 12 LPI, 9.6 LPI, 8 LPI, 6 LPI, 5.33 LPI, 4 LPI, 3 LPI and 1 line/cm. If an unimplemented value is requested, ES32 will approximate the requested value.

The [OCL](#) PRINT procedure on S/36 and printer files on S/38 and AS/400 are fully supported, allowing changes to be made to character density, line density and page length. If used under DW/36, TM/38 or Office/400, bold, underline and overstrike are available since they are achieved by overprinting.

These printers are best suited for applications that do not require advanced highlighting features. It should be noted that ASCII printers capable of operation faster than 2000 characters per second may obtain higher speeds (up to 30% faster) with the 5256, 4214 or 5219 emulations, due partially to the twinax protocol implementation on the System/3X or AS/400.

When configuring the System/3X or AS/400, use the following device codes for this type of printer:

System/34	2P
System/36	PC or BB (5224 only) or CD (5225 only)
System/38	DEVTYPE (5224) MODEL (2) or DEVTYPE (5225) MODEL (4)
AS/400	TYPE (5224) MODEL (2) or TYPE (5225) MODEL (4)

5219 / 3812 Printer

This printer is one of the most sophisticated printers available for the System/3X or AS/400. It supports several character densities, line densities, [fonts](#) and highlighting effects (underline, overstrike, superscript, subscript, etc.).

The page length can be specified either in inches or as the number of lines per page. The page width can be specified either in inches or as the number of characters per line. If an attempt is made to print beyond the horizontal limits, the printer may insert an automatic New Line, if desired. Similarly, if an attempt is made to print beyond the vertical limits, an automatic Form Feed may be inserted, if desired.

The valid character density values are 10, 12 and 15 CPI.

Available line density values are 48 [LPI](#), 24 LPI, 12 LPI, 9.6 LPI, 8 LPI, 6 LPI, 5.33 LPI, 4 LPI, 3 LPI and 1 line/cm.

The [OCL](#) PRINT procedure on System/36 does not support 5219 printers. This is a System/36 limitation. Print files on System/38 and AS/400 are fully supported. Special highlighting effects include tab, underline, subscript, superscript, indentation control and overstrike. Bold is also available by either overprinting or using the BES/EES SCS commands.

This printer is best suited for word processing applications and, on the System/36, data processing applications that do not require change of page parameters (unless the DP program itself produces the required SCS commands).

When configuring the System/3X or AS/400, use the following device codes for this type of printer:

System/34	3P
System/36	PD or DA
System/38	DEVTYPE (5219) MODEL (D1)
AS/400	TYPE (5219) MODEL (D1)

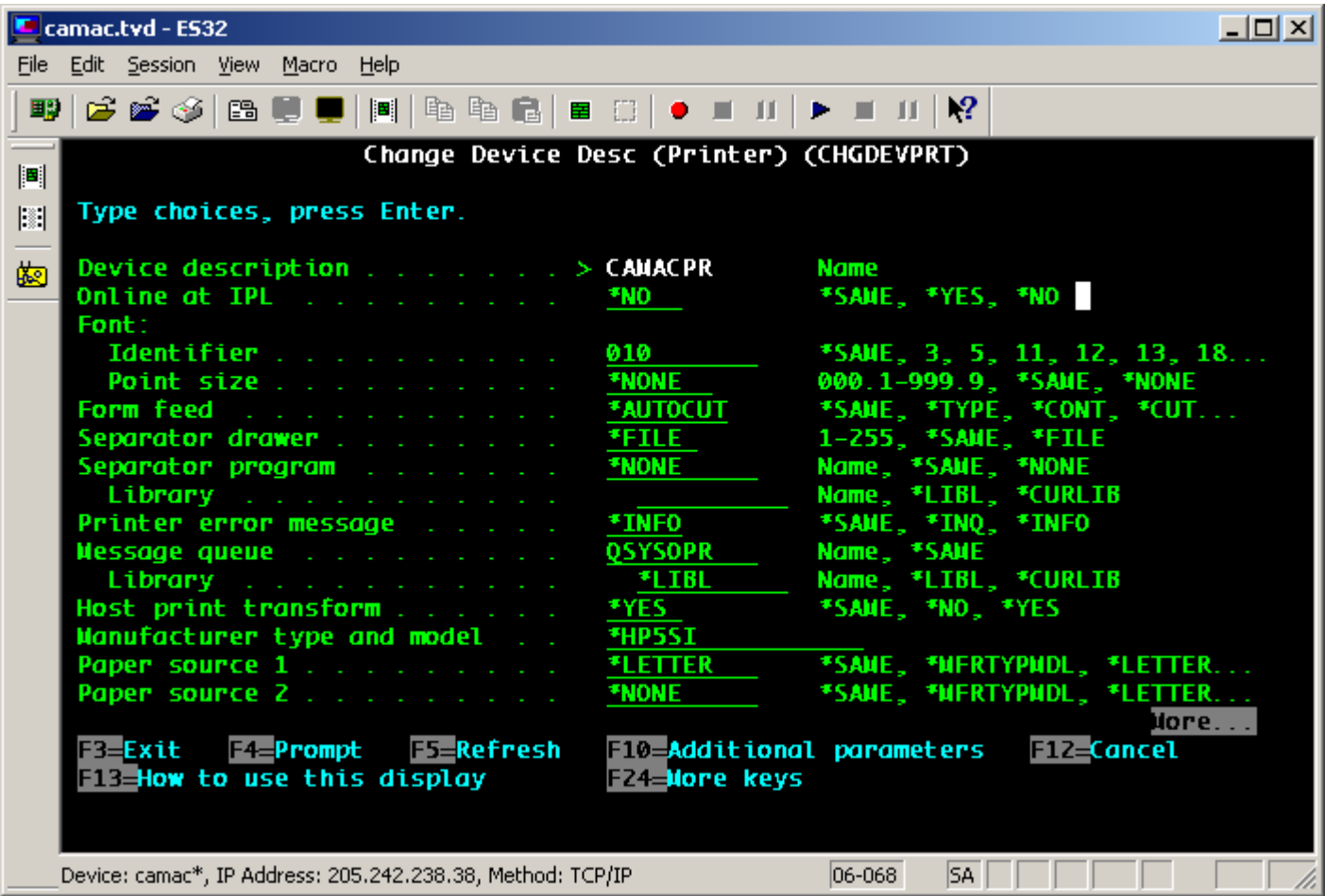
NOTE: The 3812 is a laser printer that emulates a 5219 printer. Because of the additional capabilities that a laser printer has, more features are possible, including improved font handling. This emulation does not support IPDS (Intelligent Printer Data Stream).

AS400 Host Print Transform

What is Host Print Transform?

In order to make a physical connection to an AS400; you have to tell the host that the printer is one of the many AS400 printer models. This defines the connectivity method, speed, and type of printer for the host. The AS400's Host Print Transform feature allows you to tell the AS400 what kind of printer is actually attached. Once the AS400 knows this, it can speak to the printer in its native language, or the language that the printer is emulating.

You will select the formatting attributes for the job at the AS400. The AS400 will format the data for the specific printer. It will send the data to the printer using ASCII Transparency. You must know what emulation your printer is set to. Nearly all printers can be configured to emulation at a few other printers. The printer must be configured to match the 'manufacturer type and model' that you select at the AS400. One of the most common printer emulations is the IBM Pro Printer (which is *IBM42011 for the IBM 4201-1 Proprinter).



How do you enable Host Print Transform on the AS400?

For [TDLC](#), you must enable it at the AS/400 manually. This is the procedure.

- 1) On your AS400, Using the **CHGDEVPRT** command, set:
Host print transform *YES
Manufacturer type and model. . *SAME
- 2) Place the cursor on the "**Manufacturer type and model. . *SAME**" line.
Press **F4**, which will bring up the Specify Value for Parameter MFRTYPMDL. This is where you can see your choices for Manufacturer type and model. For example: *IBM2380, *HPII, *HP5SI...
- 3) If you want more information on what one of these choices support, you can use F1 on this screen. You do not have to find your exact model. For instance, if you have an HP printer it is likely that any of the lower level HP selections will work, like HPII or HPIII, because all HP printers support Hewlett Packard printer language [PCL](#), and the difference between them is in the options that are supported.
- 4) Once you have chosen a printer to try, you must type that in on the Manufacturer type and model field.

What does the AS400 do when Host Print Transform is select?

The AS400 Operating System inserts a code to tell the peripheral that the data is ASCII instead of EBCDIC, and it will send the data as ASCII, which the printer control codes that are native to the printer that was selected. In the 5250 to S/36, S/38, & AS/400 Product Attachment Information, IBM refers to the command as ASCII Transparent (ATRN), format = x'03nnxx'. nn is the number of characters (in hex) to be transferred.

Is there anything that I have to do in the PC printer setup to enable Host Print Transform?

Yes, if you use Host Print Transform, you should go to the Windows printer settings and change the Spool Settings to RAW where it will Print Directly to Printer.

To change the spool settings, follow these steps:

- 1) Click the Start button, point to Settings, and click Control Panel.
- 2) Double-click the Printers icon.
- 3) Use the right mouse button to click the printer icon, and then click Properties on the menu that appears.
- 4) For Win95, Win98, or WinME, click the Details tab and the Spool Settings button.
- 5) For Windows XP or Windows 2000, click the Advanced tab.
- 6) Select Print directly to printer.

Indicators

When your signon screen does not come up. You will need to look at the following indicators to determine what the problem is:

- ✓ Cursor position: upper left, upper right, bouncing from upper left to upper right.
- ✓ Status indicators at the bottom of the screen. SA, II.
- ✓ Error codes in the upper or lower left corner.
- ✓ Screen color: white, gray with a dancing terminal, or black.

Cursor Positions:

- Upper right (usually accompanied by the dancing terminal) means that you do not have a twinax connection.
- Upper left means that you have connected to the host, but your session is varied off.
- Bouncing from upper left to upper right means that you have a workstation address conflict or a device mismatch.



Status Indicators:

- **24-002** indicates the cursor is in the lower left position of the screen.
- **SA** means **Station Available**. If this is showing, but you do not have a signon screen, it would indicate that you are connected, but the controller is down.
- **II** means **Input Inhibited**. You are connected to the host, but an error prevents you from communicating. Pressing Error Reset (Ctrl) will clear this. If it recurs, do an Erase All Input, then Error Reset.
- **IM** is for **Insert Mode**. This allows you to insert new text, push existing text to the right.
- **KS** is for **Key Shift**.
- **MW** indicates that you have a **Message Waiting**.

Error Codes: covered in a table in [Appendix E](#).

Screen Color:

- **White** indicates that you have not performed Session – Connect.
- **Gray** indicates that the hardware has not connected.
- **Black** means that you are connected and the problem is either a device mismatch or problem at the host.

Problem Guide

This section contains the meaning and solutions to problems and error messages, and answers to questions.

ES/PCI Error Messages

These are the error messages that one might encounter when installing or running the ES/Server emulation software.

ERROR MESSAGE: "You have not configured any emulation devices. You must configure at least one device before you can use the emulator. OK to configure now."

CAUSE: This could happen if you did not properly name your device. You must name it. Do not use spaces or funny characters.

CAUSE: This points to a mismatch between the hardware driver and the connection method driver. You may have installed the wrong hardware driver. These are the drivers that must be installed when you first bring up the PC after installing the card, but before running the setup, where you install the connection method driver. It could also be a hardware conflict or a hardware failure.

CAUSE: This could be caused by an interrupt conflict the Windows Power Management module.

SOLUTION: Click on New Device. It will bring up the Configuration Properties menu. Select Display or Printer if it is not already selected, and give the device a name that is indicative on the connection method and device, like 'DSP01'0100 or 'PRT010101'. Do not use spaces or funny characters.

SOLUTION: Check the hardware driver for problems in the Device Manager. See Chapter 1.

SOLUTION: Go into the BIOS and disable Power Management functions. After you reboot, go into the Control Panel, and change all of the power settings to Never.

ERROR MESSAGE: The **Device Manager** tab), for the **Twinax Adapter** it says: " **This device has a problem: Code=10 (0xA): : This device is not present, not working properly, or does not have all the drivers installed.**"

CAUSE: You either have not installed the hardware driver, which is located on the CDROM in the INF folder, or you have a hardware failure.

SOLUTION:

Install the latest hardware driver, found at <http://www.nlynx.com/html/tb-espciddrivers.htm>

If that does not solve the problem, call 1-888-288-9080 to make a warranty claim. Have your serial number handy. It is on the card guide where you can see it from the back of the PC.

ERROR MESSAGE: The **Device Manager** tab), for the **Twinax Adapter** it says: "Other PCI Bridge".

CAUSE: You have a hardware failure.

SOLUTION: Call 1-888-NLynx67 to make a warranty claim. Have your serial number handy. It is on the card guide where you can see it from the back of the PC.

ERROR MESSAGE: After it is installed, it errors out and reports "**Unable to find configuration information for connection method named**".

CAUSE: Several things can cause this problem. It points to a problem with the hardware or drivers. It could be the wrong drivers were chosen. The Win98, WinNT, and Win2K all use the driver dated **4/19/2000**. If you see the 5/20/1999, you have the ClientAccess version.

SOLUTION: **Uninstall** the ES32 software.

- 1) Click the **Start** button then **Programs** then **ES32** and then **Uninstall**.
- 2) **Remove** the (hardware) driver:
- 3) Click the **Start** button then **Settings** then **Control Panel**.
- 4) Click **System** and the **Device Manager** tab.
- 5) Double-click **Twinax Adapters** and it should show the **NLynx Twinax Adapter**.
- 6) Click once on it to select it and then click on the **Remove** button the bottom of the window.
- 7) Recycle power.
- 8) Reinstall using the directions on the CD-ROM **ESPCI.doc** being careful to select the correct driver for your operating system, which is the one in the **INF/WinXX** folder.

ERROR MESSAGE: After it is installed, it errors out and reports "**Unable to start session**" or "**Error FFFB.. VDI_Err_No_Free_Session = -5 FFFB;Error - No Free Session**".

CAUSE: You installed the ClientAccess version of software from the ES32CA folder.

SOLUTION: **Uninstall** the ES32CA software.

- 1) Click the **Start** button then **Programs** then **ES32** and then **Uninstall**.
- 2) Recycle power.
- 3) Reinstall from the **ES32** folder.

ERROR MESSAGE: Popup screen: "**FAILED TO UPDATE SYSTEM REGISTRY**" and On ES32 shutdown: "**Unable to save C:\program files\es32***.TVD Error: (5) Access is denied.**" The two options are Retry and Cancel. Only cancel works.

CAUSE: Windows 2000 Professional and Windows XP has an option to prevent users from writing to the registry.

SOLUTION: 1) No harm is done and these error messages can be ignored. 2) Define all users of the ES/Server card as at least a Standard user in the Power User Group under the Control Panel's Users and Password settings for Group Membership or ignore these messages, 3) upgrade to version 5.0.1.6 or greater or 5) you can get rid of the ES32 shutdown message by changing the ES32 Display option: "Do not save customizations on exit". Do this by selecting File/Configure, and then select the Options button.

ERROR MESSAGE: "Unable to write this configuration please re-configure" or "**Unable to write configuration file**"

CAUSE: You do not have the hardware drivers installed. You must install the correct driver for your operating system. This happens when you first put the card in.

SOLUTION:

Remove the card from the Device Manager and re-start the PC. The Windows Add New Hardware Wizard will appear. Insert the ES/Server CD into CD drive and follow the Wizard screens. When you get the message "Please insert the disk labeled Win xx Drivers Disk" Click OK and Browse to the ES/Server CD. Browse to the **INF** folder and then select the folder for your Windows Operating System version. When the message "Copy files from Windows" displays the correct path for the .inf file Click OK. See more specific instructions at the beginning of this manual.

ERROR MESSAGE: "**System Standby Failed.** The device driver for the 'NLYNX PCI Twinax Adapter' device is preventing the machine from entering standby. Contact your vendor." OR "The device driver for the 'Nlynx PCI Twinax Adapter'" device is preventing the machine from entering hibernation. Please close all applications and try again. If the problem persists, you may need to update this driver." This occurs even when the software is not running.

CAUSE: The ES/Server 's driver software is always active. When the ES/Server card's driver is loaded, at PC boot time, and loads the microcode onto the board, it starts the session to the AS/400.

If you go to hibernation mode then there is no power on the PC and the PCI board will be unable to answer polls from the AS/400. If that is the case then the session will be disconnected, and will have to be restarted when the PC comes out of hibernation mode. This will be unacceptable in the AS/400 environment. The PCI board has to answer polls all the time even if the session is not active.

SOLUTION: On Windows 2000 and XP, you would have to disable standby and hibernation. You could use a password on your screen saver for security.

On NT you can stop this by changing the start up of the device from automatic to manual.

ERROR MESSAGE: When I try to open my session, it says, "**The device name xxxxx is in use**".

CAUSE: If you open *display2* from *display1* then close down *display2* last AND you also have the parameter "**Open last file when started**" enabled, it will make *display1* open *display2*.

SOLUTION: Open Notepad (**Start/Programs/Accessories/NOTEPAD**)

Open the [TVD](#) file that you open first. (**File/Open**, change the **Files of Type** to **All Files**, then browse to **Desktop** (click on the desktop icon at the top), then **My Computer**, select the **C:** drive, then **Program files**, then **ES32/** and finally *display1.TVD*

It will bring up a file that has a parameter HostLinkName= *display1* at the top. This needs to match the name of the TVD file.

PREVENTION: After bringing up the Display Emulator, go to each of your sessions and select the **Session/Properties** menu.

Select the **General** tab.

Remove the check from "**Open last file when started**"

PROBLEM: You are doing a new installation or have upgraded the operating system. After you install the software, you start the Display Emulator and when it brings me to the "Configure Connection Method and Devices" window, there are no devices under "This Computer" or the device that is there is X'd out. You can't select Add/Remove Method or New Device, because they are grayed.

CAUSE: The ES/Server hardware driver for the operating system on this PC is not installed. Windows could have loaded it's own default, or maybe none at all.

If you are using Windows 98, Windows 2000, or XP, the driver file should be NLTwinax.sys.

If you are using Client Access on Windows 95 or Windows 98, the driver file should be PCITwin.VxD.

If you are using Win95, or WinNT4, the driver file should be PCITwin.VxD.

SOLUTION:

Reinstall the hardware driver. The hardware driver is located in the INF folder on the CDROM. You should uninstall and delete any incorrect drivers. Please follow the [Preparations](#) Instructions in Chapter 1.

PROBLEM: It did not bring up the Add Hardware Wizard when the card was inserted. After you re-boot the PC, it is registering a hardware conflict. This could be something like "FDC Failure" or it would lock up while trying to load 'msmouse.vxd'. It may freeze up.

CAUSE: BIOS PnP is set to No for the PCI slot that you put the card in.

SOLUTION: You must enable **Plug'n'Play** in the **BIOS** for the PCI slot that the ES/Server card is in. Power up the PC and go into the **BIOS SETUP**. Usually you will press the Del key right after power-up. Here is listing of some of the key combinations used to enter the BIOS setup on startup. You must do this during the first few seconds after you turn on power. If you see the Windows startup, it's too late.

Award Bios=Ctrl-Alt-Esc

AMI Bios and Award Bios and others=**Del (most common)**

Compaq=F10

Dell=Ctrl-Alt-Enter

Dell=Reset (Twice)

HP Pavillion= Esc then F1

NEC=F2

Phoenix Bios=Ctrl-Alt-S

Phoenix Bios=Ctrl-Alt-Ins

PS/2=Ctrl-Alt-?

PS/2=Ins

Toshiba=Esc

Toshiba=F1

With the Award BIOS you will go to **PNP/PCI CONFIGURATION** and set **PnP OS Installed** to **Yes**.

QUESTION: How do I figure out what name it will be provided by the host?

ANSWER: It depends on whether you are running SSP (Advanced System/36) or OS/400 (AS/400's)

If the OS is SSP, you use CNFIGSSP to configure or see what the device name is.

<http://www.nlynx.com/html/tb-configsys36.htm>

If OS/400, then the answer depends on whether you use autoconfigure (system value: QAUTOCFG) and if you do, what the device naming parameter is set to. (system value: QDEVNAMING).

QDEVNAMING must be one of the following values:

- *NORMAL. Naming conventions must follow AS/400 standards. The following are examples of names following AS/400 standards:
Display Stations DSP01, DSP02 Printer PRT01, PRT02
- *S36. Naming conventions should follow System/36 standards. The following are examples of names following System/36 standards:
Display Stations W1, W2 Printer P1, P2
- DEVADR. Device names are derived from device addresses. The following are examples of names following the device address naming conventions:
Display Stations DSP010000, DSP010403 Printer PRT010302, PRT010502

PROBLEM: You upgraded your Windows operating system to Windows 2000. When you start the Display Emulator and when it brings me to the "**Configure Connection Method and Devices**" window, there are no devices under "**This Computer**" or the device that is there is X'd out.

CAUSE: The ES/Server driver needs to be correct for the Windows operating system on this PC.

SOLUTION: Go to the Device Manager for that operating system and check what driver you have.

If you are using **Win98, Windows Millennium, or Windows 2000**, the driver should be **NLTwinax.sys**.

If you are using **Client Access** on any operating system, the driver file should be **PCITwin.VxD**.

If you are using **Win95, or WinNT4**, the driver file should be **PCITwin.VxD**.

Latest and greatest driver is located at:

<http://www.nlynx.com/html/tb-espciddrivers.htm>

PROBLEM: You ran the configuration and there was no conflict, no problems. You get to the emulation screen, but it is blank. The SA (Station Available) indicator is lit. The cursor stays upper left.

CAUSE: Top left means that your station is not varied on. This can happen if you disconnect when you are not at the signon screen.

SOLUTION: If the last device using this station address crashed, the station address will be varied off. Ask the System Administrator to vary your device on. This may require varying off, and then back on.

PROBLEM: You ran the configuration and there were no conflicts. You get the black emulation screen, but it is blank. The SA (Station Available) indicator is not lit. The cursor stays upper right.

CAUSE: No Station Available indicates that the card does not have a connection to the Midrange host. You probably have a twinax connection, but there is not a connection to the host. This could be a controller problem if you are at a remote site.

SOLUTION(s): Make certain the controller is connected to the host and varied on.

PROBLEM: You ran the configuration and there were no conflicts. When you go to connect, the little PC is just dancing with the AS/400 but it does not give the black screen. The cursor is in the upper right.

CAUSE: This indicates that you do not have a connection to the twinax line.

SOLUTION(s):

- ✓ Make certain that the ES/Server card is screwed in tightly. Twinax cables are heavy enough to pull them out of the socket.
- ✓ Make certain that the [T-cable](#) is screwed on tightly. The T-cable should be black.
- ✓ Check the Twinax cable. Make certain there are no bent or recessed pins, and that it is keyed correctly. Swap if possible.
- ✓ Check the terminate switch on any terminals before and after your connection on a [daisy chain](#). The last device, furthest from the host, and only the last device, must terminate the Twinax line. Most T-cables self-terminate.
- ✓ If you have [baluns](#) and CAT5 or CAT6 wiring, make the CAT5 wire must have a minimum of 15 feet. Make certain that the polarity and pins of your baluns match your CAT5 wiring.
- ✓ Make certain that you have a valid workstation address and that the device type matches the host or that the host is set to auto configure. WRKSYSVAL QAUTOCFG
- ✓ Check for system error messages. If you are connected to a remote controller, it might be varied off.
- ✓ Trying swapping with known good hardware.
- ✓ Make certain that the device type for the terminal that worked, is the same as the terminal that you configure the ES/Server to emulate.

PROBLEM: You ran the configuration and there were no conflicts. You get your signon screen, but it goes away and comes back, goes away and comes back. Someone is screaming in the background.

CAUSE: You have taken the same WorkStation Address as someone else on the same Twinax line that you are on.

SOLUTION(s): Ask the System Administrator what Work Station Addresses are available. Twinax station addresses are numbered from 0-6. On the AS/400 this is the Switch setting. You must follow the Twinax cable and check each devices switch or configuration to verify what address(es) each device is taking. Many devices will take more than one station address.

PROBLEM: You get your emulation screen, but it is gray, not black, with the cursor in the upper left. The SA (Station Available) indicator is on. Top left means that your station is not varied on. Host shows Vary On Pending. No system messages.

CAUSE: The SA indicates that we can see the host, but the cursor in the upper left indicates the host did not see us. This could be bad hardware, but it is probably a cable termination problem.

SOLUTION(s):

If you are daisy chaining, make certain that the last device is terminating the line. You cannot daisy chain if you are using CAT5 wiring and baluns. Double-check the twinax connections. Make certain the twinax pins are not recessed. Make certain the T-cable is screwed on tight.

PROBLEM: You want to change the IRQ from 3 to 5. It is causing a conflict with the modem or something.

CAUSE: You cannot change the settings because that is a PnP board and Windows controls the resources.

SOLUTION: Move to a different PCI slot. You can go into the Device Manager, and remove the check from Use automatic settings, but this is for experts. Not recommended. Not supported.

PROBLEM: It is not getting a connection. No cursor is visible. Attached to a remote 5494 controller. Display is configured as 3477.

CAUSE: Some controllers do not support 3477 emulation.

SOLUTION: Change the description to 3197C.

PROBLEM:

After installing the software, you cannot select the Host Address that you need.

CAUSE: Having a "[TVD](#)" file with the same host address still resident on your PC would cause this.

SOLUTION: **Uninstall** the ES32 software. **Start/Programs/ES32/Uninstall.** (Do not recycle yet). **Remove** the driver. **Start/Settings/Control Panel/System/Device Manager.** Select the (NLynx) **Twinax Adapter and select Remove.** (Do not recycle yet).

Start > Find > Files or Folders and put *.TVD in the **Named** field, and **Look in** C: drive. Delete all of the *.TVD files that it finds. (Do not recycle yet).

Start > Find > Files or Folders and put *.[TVP](#) in the **Named** field, and **Look in** C: drive. Delete all of the *.TVP files that it finds.

Recycle power. Reinstall.

PROBLEM: IRQ conflicts. This category of problem can show itself in many ways. For example: after installing the ES/Server card, sound cards or network cards no longer work or general protection faults occur. Sometimes a problem might be tied to the start bar.

CAUSE: IRQ or Interrupt is the name of an input found on the processors which causes the processor to suspend normal instruction execution temporarily and to start executing an interrupt handler routine. Most devices, like sound cards, network cards, and so forth use these.

If two devices try to select the same IRQ, or if no IRQ remain available, then software conflicts occur.

IRQ conflicts can be difficult to resolve, because they almost always involve getting into the BIOS and there are several different BIOS formats, and because the conflicts inherently will involve multiple manufacturers, neither of whom, knows all about the other device.

POTENTIAL SOLUTIONS:

1) *Sometimes* there is a setting in the BIOS for 'PnP OS -- Yes or No?' This option is basically asking if you have a Plug and Play Operating System, (like Win98), which you do. If you select No, the BIOS attempts to perform the Plug n Play operation. While it is technically best to answer this honestly, sometimes you can shift things by changing the answer to the question.

2) Update your PC to the latest version of Microsoft Windows for the Operating System that you are using.

PROBLEM: PC locking up. After many boot retries the PC finally booted okay.

CAUSE: Version 5.0.1.1. or below.

SOLUTION: Upgrade

PROBLEM: It keeps seeing the Windows XP Professional PC as Windows 95.

CAUSE: The emuapp32 application is set to Compatibility for Win95.

SOLUTION: Right-click on the Emuapp32 in C:\Program Files\es32. Selected the Compatibility tab, then check Run this in compatibility for Windows 2000.

Session Questions:

QUESTION: How do I add another session?

ANSWER:

- 1) Close the sessions down by signing off the host and then selecting **Session – Disconnect**.
- 2) Click the **Configure** icon, (or select File, then Menu) to bring up the **Configuration Properties** window.
- 3) Give it a name!
- 4) Select **Display** (or Printer).
- 5) Select the type of display or printer.
- 6) Select an unused **Host Address**.
- 7) When you are done configuring it, click **OK**.

QUESTION: What are the requirements of the device name?

ANSWER: It is recommended that you use a device name that has part of your IP Address or Work Station Address at the end. For TN5250E sessions where the name provided is shown on the AS/400, the initials or name of the user is helpful. It is also useful to reference the application that the session is usually used for.

- You can use any number and letter combinations.
- You can use the characters @ \$ and _.
- Ten characters is the maximum for TN5250E sessions.
- The characters ? < > , . / \ | and * are not accepted.
- The characters ~ ! % ^ & () - + = { } [] are accepted, but should be avoided for ES/TCP because the character will change to # at the AS/400.
- You cannot use - (dash).
- You cannot use spaces for TN5250E sessions.

QUESTION: How do I add another session if I do not have any unused station addresses left?

ANSWER: Open your first session and sign on.

Do a **System Request** then put a **1** down there where the lines are:

1|||||

It will bring up another signon screen. To switch between them, do step 2.

QUESTION: What is the big red triangle over the left corner of my [TVD](#) or [TVP](#) icon?

ANSWER: This is the session that was opened to initially start ES32.

QUESTION: Why don't I get the big red triangle over the left corner of my [TVD](#) or [TVP](#) icon on my other open sessions?

ANSWER: If you opened them from the TVD or TVP file, you would, but if you open them from the open Display Emulator session, using File/Open Display or the Open Another Display icon, it will not put the red triangle there.

QUESTION 8: My shortcuts keep pulling up Untitled.

CAUSE: Invalid name.

SOLUTION: Do not use a name with more than ten characters or a -.

Screen Questions:

QUESTION: I do not have access to the menu bars, how do I get my screen out of full screen mode?

ANSWER: **Right-click** in the middle of the screen.

Remove the check from **Full Screen**.

QUESTION: Every time I start the software, I do not have access to the menu bars, how do I get my screen out of full screen mode?

ANSWER: **Right-click** in the middle of the screen.

Remove the check from **Full Screen**.

Now click on the **Sessions** menu and select **Properties**.

Click on the **Display** tab.

Remove the check from **Full Screen Mode after connection**.

Font Questions:

QUESTION: My local (not host) screen prints print out garbage.

CAUSE: The [font](#) that you have chosen in the ES32 setup is either not a [TTF](#) (True Type Font) or is not loaded in the printer.

SOLUTION: All printer interfaces are different in Windows, but some printers have an option in the printer driver to print fonts from the printer or direct from the application.

SOLUTION: Choose a different font. In ES32, click on Session, and select Properties, the Font tab.

QUESTION: Why does it not retain the column formatting when I cut and paste into a Word doc?

ANSWER: It assumes the font of the document that you paste into. If you choose EBCDIC it will regain the columns. To see the other fonts that work, you can to the Session menu, click Properties. Click the Font tab.

QUESTION: How do I get it to show all 132 columns?

ANSWER: You must select a model to emulate that supports wide screens. These would be 3180, 3197D, or 3477. This happens automatically with ES/TCP when you select 132 columns.

Select **File** then **Configure**.

Select your display. If it is not showing, click the **+** on the display adapter.
Click on **Properties**, it should bring up the **Configuration Properties** window.

QUESTION: I selected 3197D but I am unable to achieve a 132-col display.

ANSWER: Check your [font](#) selection.

Select **Session**, then **Properties**

Select the **Font** tab.

Make certain that the "**Scale font to fit Window**" is checked.

QUESTION: Why are there so few font options in ES32?

ANSWER: The fonts have to be True Type and [monospaced](#) (or fixed spacing) for IBM screen emulation. Every character has to take up the same amount of space. Most fonts in use are not monospaced. They have to be created internally.

Keyboard Questions:

QUESTION: How do I do re-map the keyboard?

ANSWER: Click on the **Sessions** menu and select **Properties**.

Click on the **Keyboard** tab.

From the list of Host Keys, select the one you want to map to your keyboard.

If the host function is currently mapped to your keyboard, its key combination will display under **Currently Set To**.

Click **Set**.

Choose a different key, or a key together with Control, Alt, or Shift to remap it to and press that key or key combination and click **OK**.

QUESTION: I wanted to make the left ALT key the error reset, in addition to the left control (CTRL). I also wanted to make the right ALT key the Newline key. Whenever I try to do that, it expects ALT + another key. Can I do what I want to do?

ANSWER: No, the Alt key by itself has a System 36 function so it cannot be used by itself, except for the System 36 function. Not only that, but some of the old programs like DisplayWrite used ALT letter combinations, for example ALT C to center. This particular function often will not work if the PC has a program trap set for that key scan.

QUESTION: How do I do things like System Request and Command 13-24?

ANSWER: Easiest way is to click **View** then put a check in **Command Keys**, then click it again and put a check in **Function Keys**. After that you can use your mouse.

Alternative method is to figure out where everything is mapped to the keyboard, by selecting the **Sessions** menu and select **Properties**.

Click on the **Keyboard** tab.

QUESTION: When I try to use the **/**, *****, **-**, and **+**, on the numeric keypad, it does not work, how do I do re-map the keyboard to use these characters?

ANSWER: Those characters are assigned by default to the Duplicate, Jump, Field Minus, and Field Plus functions.

Click on the **Sessions** menu and select **Properties**.

Click on the **Keyboard** tab.

From the list of Host Keys, select the one you want to map to your keyboard.

If the host function is currently mapped to your keyboard, its key combination will display under

Currently Set To. Click **Set** on the Host Key that you want to change.

Either just select **Remove** or Choose a different key, or a key together with Control, Alt, or Shift to remap it to and press that key or key combination and click **OK**.

QUESTION: How do I perform ALT-letter combinations required by DisplayWrite36 to do functions like ALT B for Bold.

ANSWER: The left CTRL key functions as either the CMD key or the ALT key for most of these functions. This will work for most cases, except where the Windows OS interprets the Control/Key sequence first. The Keyboard Driver handles this. Microsoft or the Keyboard vendor writes keyboard Driver. Functions that would cause problems are Control/C, Control/P, and Control/V.

QUESTION: When you use DisplayWrite36, Alt/c or Ctrl/c are supposed to center text, and Alt/p or Ctrl/p is supposed to insert a page-end. These functions do not work. All the other Alt or Ctrl key combinations the application uses do work.

CAUSE: Windows OS interprets the Control/Key sequence first. Functions that would cause problems are Ctrl/C, Ctrl/P, and Ctrl/V, because these are standard Copy, Print, and Paste.

SOLUTION: Use the combinations:

Shift/Ctrl/ (and the appropriate letter) to get past the Windows trap and be interpreted as the appropriate DisplayWrite36 function. For Example:

Shift/Ctrl/C will product CMD-c that is used to produce the DisplayWrite centering command.

QUESTION: Where is the cent sign key on the ES32 emulation keyboard? Also, where is the key that looks like an upper right corner, looks like a 7 except it is a right angle with equal sides?

ANSWER: The cent sign and logical not are not defined on the PC keyboard so there is a workaround called 'executing a hex value'. In the example below, the upper right corner symbol is a logical not and its hex value is 5F. To execute a hex value on the ES32 emulation software (in this case you are trying to execute a logical NOT or hex 5F) do the following:

1. Get the emulation connected and signed on.

Go to where you want to place a hex value, click the **right-side mouse** button.

Select **Function Keys** and then **Hex**.

Using the number pad of the keyboard select **'5'**.

Using the alpha keys select **'F'**.

This will produce the logical NOT sign. All hex values can be done this way. The hex value for the cent sign is 4A.

To avoid steps 1-3, you can define a key as the Hex key, by doing the following steps:

1. Go to the Properties menu by pressing the Properties icon or select **Session**, then **Properties**.

2. Select the **Keyboard** tab.

3. Scroll the **Host Key** window down to **Hex**, and click on it to select the key that you want to have as your 'Hex' key.

4. Click **Set**.

5. Press a key (that will become your Hex key).

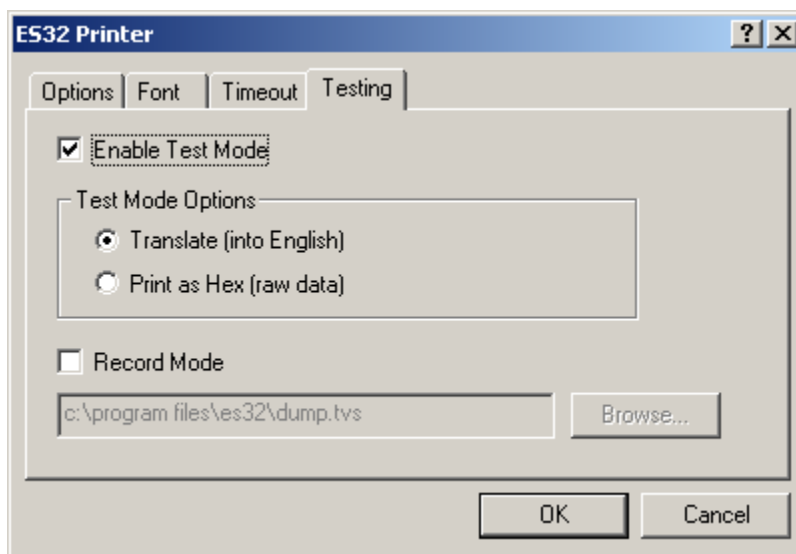
6. Click **OK**.

7. Click **OK** again.

Printer Troubleshooting

Resolving printer problems is usually a case of tweaking parameters here and there and examining the output. Typically this is done in the application or the printer configuration at the AS/400. This is not our area of expertise or responsibility. If you believe that the terminal is doing something wrong. Technical Support can examine the output and make a recommendation. This is what we will need after each attempt.

1. Determine what IBM printer you are emulating and see if it is the best printer for your purposes.
2. Determine method of control you will use. If modifying the data output does not have any effect, then make certain that you have proper set up the control of the printer at that point.
3. Look at the printer definition on the AS/400 and the job definition on the AS/400. There are many places for the AS/400 to affect the job output, make certain that you have explored them all.



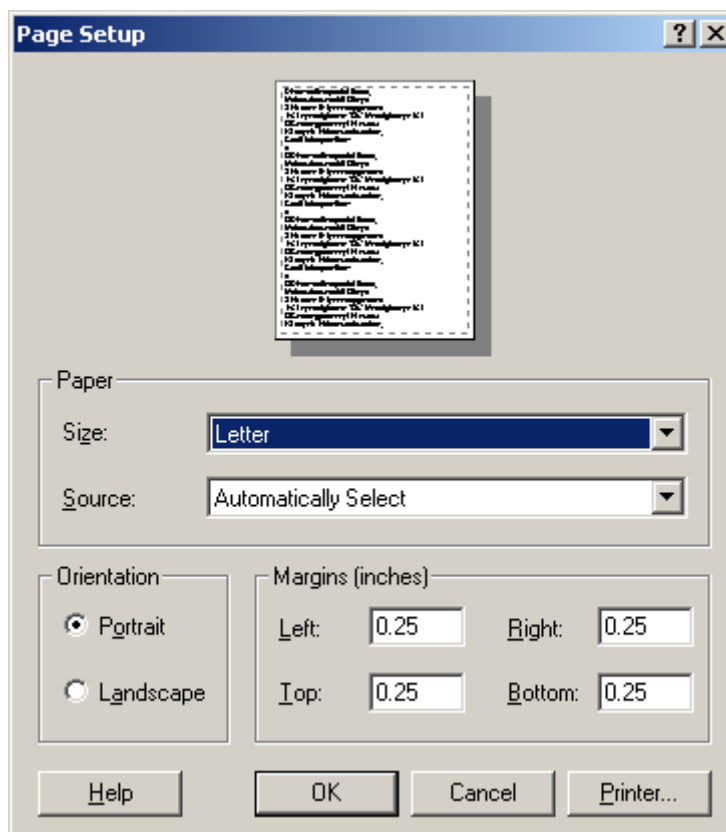
Get a printer hex dump from ES32:

- Put the host job that you are having a problem with in save mode so that you can send the same job a few times.
- Send that job to get a sample of failing output.
- In the ES32 printer control panel, click on the **Online** button to take the interface offline. The green light will go out.
- Click the **Properties** button and select the **Testing** tab.
- Put a check in **Enable Test Mode**.
- Either put a check in **Translate** (into English). This will show the printer commands that were sent or put a check in **Print as Hex** (raw data).
- Click the **OK** button, and then the **Online** button to put the interface back online. The 'green light' will come back on.
- Re-submit the AS/400 job that you put in save mode.
- Examine the failing output and the translated output. This may help you to see what commands are being sent and find the problem.
- In the ES32 printer control panel, click on the **Online** button to take the interface offline. The green light will go out.

- Click the **Properties** button and select the **Testing** tab.
- Remove the check from **Enable Test Mode**.
- Click the **OK** button, and then the **Online** button to put the interface back online. The 'green light' will come back on.

Technical Support can help you to examine the traces. Fax samples of the failure (marked up as necessary) and the test output to 512-869-2621. Alternately scan and email to support@ringdale.com.

It may also be helpful for technical support to see the host definition and the printer definition. You can print these by using **Alt / Print Screen** and either printing the result or paste into an email, when on the appropriate screens.



Other Questions:

QUESTION: Does your software under printer configurations, goes it have an option to print to a file instead of a printer?

ANSWER: ES32 uses the Windows Driver Interface. The Windows Driver Interface has an option where you can create a file on disk. The procedure is to add a printer that does this and print to that printer:

Click the **Start** button then select **Settings** and then **Printers**. This will bring up the **Printers** folder.

Double-click on **Add Printer** to bring up the **Add Printer Wizard**.

Click the **Next** button and it gives you an option of Local or Network printer. Choose either, and then click the **Next** button again.

Select the printer (usually you will choose **Generic/Text Only**).

There is an option to select one of the "**Available ports**" where you will see the option to select **FILE: Creates a file on disk**.

After creating this printer, bring up the ES32 printer interface using **File / Open Printer**.

Click the **Online** button to take the printer offline (green 'light' goes out).

Click the **Page Setup** button.

In the lower right, click the **Printer** button.

Select the **Generic/Text Only**.

QUESTION: How do I get help for myself?

ANSWER: Click on the Help menu at the top right.

More documents like this can be located on our web site at <http://www.nlynx.com/html/technicalbulletins.htm>

ES/Server Section

This section has solutions to problems that one might encounter when installing the ES/Server and ES/Clients. It is recommended that you configure the ES/Server and establish the sessions to the host from the ES/Server first before attempting to establish a session from a client.

The categories of problems are:

ES/Server Card Installation & Configuration Problems

ES/Server to Midrange Host Connection Problems

ES/Client Installation Problems

Network Problems

Other Problems

Make certain that you can connect to the Midrange host directly from the Server.

Establish a connection to the host from the ES/Server. If you are having problems getting your sessions to work at the ES/Server PC, then refer to these URLs:

See also: <http://www.nlynx.com/html/tb-es3xtwinproblem.htm>

Or: <http://www.nlynx.com/html/tb-espciproblem.htm>

Once the sessions work at the ES/Server's Display Emulator, disconnect the session and then make certain that **Allow remote connection** is enabled in the device Configuration Properties window.

The majority of problems with the ES/Server connection are network integrity problems that do not do with the ES/Server per se. It will work not until both the Server PC and the client PC's see each other in the Network Neighborhood.

Ping from ES/Client to ES/Server.

Ping from ES/Server to ES/Client.

Look in Network Neighborhood of the ES/Server to see if the ES/Client is visible.

Look in Network Neighborhood of the ES/Client to see if the ES/Server is visible.

Broadcast from ES/Server to ES/Client to check connectivity between the LAN devices.

Use a static IP Address on the ES/Server PC Network settings for TCP/IP.

Make certain that the network protocol used is configured correctly in the server and client.

The ES/Server software utilizes the Microsoft RPC (Remote Procedure Call), and this is a Microsoft product. If you get the "RPC Server not available" or any other RPC error message, go to

<http://www.nlynx.com/html/tb-rpcserver.htm>

The message "The type universal unique identifier (UUID) has already been registered." is referenced on this web site: http://www.opengroup.org/onlinepubs/9629399/rpc_object_set_type.htm

In order to figure out your problem, these questions need to be answered:

What Windows OS is the PC that the ES/Server card is in?

What protocol do you use for your sessions?

What status does the ES/Server show for the sessions?

Can the ES/Server ping the clients?

Can the client ping the ES/Server?

Broadcast from ES/Server to ES/Client to check connectivity between the LAN devices.

Put the Server and Client on their own VPN.

Check the memory address for the 3 ES/PCI cards. We may need to make certain that the cards are installed in concurrent memory addresses. This might require forcing or uninstalling devices that are inside the concurrent space and making certain to install the ES/PCI cards before the 'offending' device.

RPC Ping: RPC Connectivity Verification Tool - This tool confirms Remote Procedure Call (RPC) connectivity between RPC servers and clients on a network. RPC Ping checks to see if RPC services are responding to RPC requests from client computers. Files Required:

Server Component: Rping.exe (for Microsoft Windows 2000 and Microsoft Windows NT)

Client Component: Rpingc.exe (for Windows 2000, Windows NT, and Microsoft Windows 95, and Microsoft Windows 98)

Rpingc16.exe (for Microsoft Windows 3.1x clients)

ES/Server Card Installation & Configuration Problems

PROBLEM: You are trying to install the ES/Server ISA 3XTwin card on Windows 2000. It keeps saying, "**You have not configured any emulation devices**", but when you try to configure it, you get a message that says "**This disk contains the device driver for PCI Twinax Adapter Driver (Windows 2000)**" and you do not have a PCI card.

CAUSE: Windows 2000 does not see the ISA card.

SOLUTION: You will need to purchase an upgrade to the ES/PCI card.

PROBLEM: The ES/Client cannot establish a session with the ES/Server, but it can ping the server and vice-versa.

CAUSE: ES/Server is not configured to allow remote connection.

SOLUTION: Click on **Start / Programs / ES32/ Display Emulator**.

When the Display Emulator comes up, if a session starts, close it by selecting **Session/Disconnect**.

Select **File/Configure...** and it will bring up the **Configure Connection Method and Devices** window.

Click the **+** next to the connection to the host and it should show you the display and printer sessions that are configured.

Look at the connections to see if the 'sharing hand' is holding the terminal (or printer). (This may just look like a blue box in the lower left of the terminal). If it is not there, double-click on the display or printer and make certain that the option to **Allow remote connection** is enabled in the device Configuration Properties window.

ES/Client Installation Problems

PROBLEM: When you try to bring the ES/Client up, it "The RPC Server is unavailable". You can ping the ES/Server.

POSSIBLE CAUSE: You must create the devices with the ES/Server Display Emulator.

Either the ES/Server is not started, or the protocol (see above) that you chose at the ES/Client is not enabled, or the ES/Server is not started.

SOLUTION: Go to the ES/Server PC and select **Start/Programs/ES32/ES Server**.

Select the **Server** menu (in the top left), and then select **Protocols**.

Check the "Status" column to see if the protocol that you selected at the ES/Client is **available** on the ES/Server.

Check the "Connection" column to see if the protocol that you selected at the ES/Client is **installed** on the ES/Server.

PROBLEM: When you try to ping the ES/Server, it reports **Invalid Internet Address** on PCs that have MS Proxy client installed.

POSSIBLE CAUSE:

MS Proxy client is misdirecting the IP address.

SOLUTION:

Uninstall MS Proxy client.

PROBLEM: Error Message on ES/Server: The RPC protocol sequence is not supported or The RPC protocol sequence is invalid.

CAUSE: A protocol sequence identifies the network protocols used to establish a connection between the client and server parts of a distributed (RPC) application. Windows 2000 does not support a protocol sequence used in this application.

SOLUTION: ES/Server supports IPX, NetBeui, and TCP/IP. Make certain that one of these protocols is working in both the Server and the Client. Use that protocol in the ES/Server setup.

PROBLEM: Error Message: The interface is unknown.

CAUSE: In a distributed (RPC) application, servers present objects known as interfaces to clients. These interfaces have unique identifiers. The distributed application tried to use an interface that does not exist.

SOLUTION: This might occur if the Twinax connection was down.

PROBLEM: When you try to bring up the ES32 Client session, it says, "**The RPC Protocol Sequence is not supported**". If you continue, it would report: "**You cannot modify devices for this connection remotely. Configure the connection method on the server**".

CAUSE: The protocol that you have chosen to contact the ES/Server is not added to the client.

SOLUTION: On the ES/Server PC, verify that protocol used in the ES/Server setup are installed and properly configured.

Click the **Start** button, then **Settings**, then **Control Panel**.

When the Control Panel comes up, double-click on the **Network** icon.

The Network panel comes up and it will show you what clients, protocols, adapters, and services you have configured.

You will use the scroll bar to see if the protocol that you have selected at the ES/Server host is present. This could be IPX/SPX, TCP/IP, or NetBEUI.

You can now close this out on the Server and go to the Client PC.

This process will require that you have your Operating System (Win95, Win98, WinNT, or Win2K) diskettes handy.

Click the **Add...** button.

Double-click on **Protocol**. The network protocol that you add is specific to your network. IPX/SPX requires a Novell network. TCP/IP is common to most networks. NetBEUI is a small, fast protocol with no networking layer; thus, it is not routable and is often not suitable for WAN implementations.

For this example we will add NetBEUI, which a Microsoft protocol. So select **Microsoft**, and use the scroll bar on the right to select **NetBEUI**. Select **OK**.

It will require you to restart your PC.

PROBLEM: The ES/Client installs without any problem. When you execute the emulator, it launches the dial up networking dial up screen (Connect To...).

SOLUTION: Check your network settings for your adapter card. This will be in your network settings, and your Device Manager.

PROBLEM: New installation of an ES/Client gets "**RPC server unavailable**".

CAUSE: The connection method properties are incorrect. The protocol, the name, or the endpoint, do not match the host.

The server is not running.

The client cannot see the server with the protocol chosen.

SOLUTION: Use the **RESYNC** option to find the host.

PROBLEM: When you try to bring up the ES32 Client session, it says, "**The RPC Protocol Sequence is not supported**". If you continue, it would report: "**You cannot modify devices for this connection remotely. Configure the connection method on the server**".

CAUSE: The protocol that you have chosen to contact the ES/Server is not added to the client.

SOLUTION: On the ES/Server PC, verify that protocols selected in the ES/Server configuration are installed and properly configured on the PC.

Click the **Start** button, then **Settings**, then **Control Panel**.

When the Control Panel comes up, double-click on the **Network** icon.

The Network panel comes up and it will show you what clients, protocols, adapters, and services you have configured.

You will use the scroll bar to see if the protocol that you have selected at the ES/Server host is present.

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For this example we will add NetBEUI, which a Microsoft protocol. So select Microsoft, and use the scroll bar on the right to select NetBEUI. Select OK. It will require you to restart your PC.

Network Problems

PROBLEM: Getting an error message: "**RPC SERVER IS TOO BUSY TO COMPLETE THIS OPERATION**". The ES/Server will crash. Then there is an error message on the server: "**NOT ENOUGH SERVICE AREA IS AVAILABLE TO PROCEED WITH THIS OPERATION**".

POSSIBLE SOLUTIONS: Disable SPX/IPX.

Increase memory in the PCs.

Use Start/Find to locate a file named Rplctccm.dll. See if the date is at least 09/08/1999. See Microsoft's website links:

http://support.microsoft.com/support/kb/articles/Q243/2/20.ASP?LN=EN-US&SD=gn&FR=0&qry=RPC%20SERVER&rnk=5&src=DHCS_MSPSS_gn_SRCH&SPR=W98SE

PROBLEM: Continually getting this error in event viewer: "**RPC Server unavailable**"; Event ID 0 The description for the eventid (0) in source (andwtdlc) could not be found. It contains the following insertion string. \device\comA3\$01

SOLUTION: "andwtdlc.sys" is the name of the N Lynx device driver for Windows NT.

COMA3\$01 is the pseudo-name of the Driver for the 1st emulation board.

Look at the Control Panel>Devices to see if andwtdlc is there and if it is started.

Change the andwtdlc device to automatic start.

Replace the twinax card.

PROBLEM: You get an RPC failed error on the ES/Server PC. ES/Server has performed an illegal operation. Details are as follows: ES/Server caused an invalid page fault in module SESSSRVR.DLL at 014f:10005032.

SOLUTION:

ES/Server is conflicting with other software. Identify the software. May need to shut down during backups.

PROBLEM: When you try to ping the ES/Server from the ES/Client it fails on all attempts.

CAUSE: You do not have a good network connection. It could be hardware, software, or a configuration problem, most often, the latter, but verify the hardware first. You must be able to ping from the ES/Client to the ES/Server and vice-versa.

SOLUTION: Verify your hardware by making certain that the ES/Client can see other devices, (by using ping) and that other devices can ping the ES/Client. Do the same with the Server.

Make certain that the IP address and Subnet mask is correct.

Make certain that the IP address is not used by another host.

Make certain that any routers do not have invalid tables. This could occur if a PC is brought from one side of a network to another.

Make certain that the DHCP Server is up and running.

Check your hubs. See what devices you can reach, and what the AS/400 can reach, to get a clue where the problem is. Look at the *lights*.

PROBLEM: Installing remote ES/Clients. When you try to run the emulation you get a message: "RPC server is not available".

CAUSE: The ES/Server might be configured to NetBEUI. NetBEUI is not a routable protocol; in other words, it cannot be used over a router.

SOLUTION: Change the client to TCP/IP.

PROBLEM: Getting an "RPC runtime error" on the clients.

CAUSE: This is a network problem. It might indicate a bad hub or a physical break in your LAN connection. Typically you will not be able to ping both ways.

SOLUTION: Make certain that you can ping from client to server, and vice versa.

PROBLEM: Not working with XP. The RPC Protocol Sequence is not supported.

Trying to run NetBEUI.

SOLUTION: This is from Microsoft's web site: 1703L RPC_S_PROTSEQ_NOT_SUPPORTED

This is the procedure to set up NetBEUI on Windows XP

1. Click **Start / Settings / Network Connections**.
2. Click "**Change settings of the connection**".
3. Click on **Protocol** and verify that **NetBEUI** is not there.
4. Click **Install**, then **Add**, and then **Protocol**.
5. Click "**Have Disk...**".
6. Browse to **Valueadd/MSFT NET/ NetBEUI** and select NETNBF.INF

PROBLEM: When you click on the **Configure**  button on the Server, you get "**Unable to find the display emulation dispatch interface. To connect, run the display emulator again**". Running the display emulator and configuration does not change the situation.

SOLUTION: This is the Server interface to the Client. The server is unable to create a dispatch (send) interface to the Client."

Uninstall and Re-install the Networking components on the Client Computer. Change the Workgroup name to Workgroup and re-start the computer. Changed the Workgroup back to your domain name and re-start once more.

Other ES/Server-specific Problems

PROBLEM: Connecting to our network though a Web VPN connection and the LAN network response has decreased significantly.

CAUSE: The problem is that the Server/Client is constantly polling each other.

SOLUTION: It is recommend that any printer sessions are connected to the ES/Server and not the ES/Clients. This will reduce network polling for printers.

PROBLEM: Connecting to our network though a Web VPN connection and the keyboard response seems very delayed.

CAUSE: The connection to the System 36 is Twinax. The Twinax protocol is a constantly polling protocol. Every keystroke goes to the host and back, before ES32 can legally paint it on the screen.

SOLUTION: None.

PROBLEM: When you start your ES32 session or try to "Open a new session", it takes you to a folder, but the TVD files are not there.

SOLUTION:

Your TVD files will be in the C:\Program Files\es32 directory. Follow this procedure to make ES32 look in this directory first.

- 1) Start ES32.
- 2) Select Session menu at the top and then select Properties. It will bring up the ES32 display window.
- 3) Click on the General tab.
- 4) For the customization file location, enter C:\Program Files\es32.
- 5) Click OK and try it.

If it does not work, go to your C:\Program Files\es32 folder and 'cut and paste' the address field of that folder to the customization file location in the ES32 General properties.

PROBLEM: The connection between the ES/Server and the client is TCP/IP. Managed to get a Display session sign-on screen on the client PC but when you close the emulation screen, you get an error message, which says "emuapp32.exe - Application Error. The instruction at "0x77f64b53" reference memory at 0xffffffff". The memory could not be "read". Click on OK to terminate the application."

SOLUTION: If you are using multiple cards, either separate to different PCs or increase the memory. Make certain if using multiple cards that that IO and memory addressing is contiguous.

PROBLEM: You are connecting a NT network using NT 5.0 small business version to a entry level AS/400 running in s/36 mode. You have installed the hardware and the software on the both the server and two clients. You can initiate a 5250 session on the server and can open multiple sessions. You have two clients configured. The first accesses the network remotely though a dialup session. When you initiate the client session, you can see the session icons but the all are marked with a red X. When you try to initiate a session on the second client that is locally connected to the network you get the following error messages; "The RPC server is unavailable. The type universal unique

identifier (UUID) has already been registered". This system was working on an earlier version of NT. We upgraded to 5.0.

SOLUTION: The "The type universal unique identifier (UUID) has already been registered." is referenced on this web-site:

http://www.opengroup.org/onlinepubs/9629399/rpc_object_set_type.htm".

PROBLEM: The ES/Client gets a message "**Unable to find the display emulator dispatch interface**" when trying to get a connection to the server.

CAUSE: The Dispatch Interface is the Server interface to the Client. The server is unable to create a dispatch (send) interface to the Client.

SOLUTION: This problem will probably require uninstalling and reinstalling the client. This would usually be caused by a change at the ES/Server.

PROBLEM: The users cannot use the minus key on the number keypad as a dash. A lot of our entries require dashes.

SOLUTION: Select **Session**, then **Properties** and go to the **Keyboard** tab.

Go to "**Field Minus**" (and also **Field Plus**).

Currently defined as "numeric keypad minus". Change is to something else, for example

"Alt+Numeric Keypad Minus". This will make the minus key on the numeric keypad a real minus.

PROBLEM: How do you add a second card?

SOLUTION: If you have PCI cards, just install hardware the same as the first. If you have ISA 3XTwinax cards, then you must make certain that you change the I/O Address Settings making certain that the I/O address is not already taken in the Device Manager.

When you insert the card, it will activate the Windows Found New Hardware Wizard. It should identify the card as an N Lynx PCI Twinax Adapter. Click the **Next** button.

It will recommend that you search for a driver. Click the **Next** button. Place a check in the "**Specify a location**" option and click the **Next** button. When it brings up the Location dialogue box, put in the CDROM and enter the D:\inf\win2000 and it will locate the NLTwinax.sys file. Click **Next** and **Finish**.

Start up the ES32/Display Emulator (not the ES/Server). Select File/Configure and it will bring up the Configure Connection Methods and Devices window and it will bring up the new card properties. (If it did not bring up the new card, then select the existing 3XTwin card, then click **Add Remove Method**. When that comes up, select the N Lynx Twinax Adapter Driver, and it will ungray the Add Card option. Select the **Add Card** option.) Click **OK**.

It will bring up the Configuration Properties for the first session. Give the session a Device Name with the station address at the end of it.

Configure your additional sessions, making certain to select Allow Remote Connection.

Connect your Twinax cables. You must have a separate Twinax cable run for each card.

QUESTION: Will the ES/Client talk to the ES/Server from behind a firewall or behind a NAT router?

ANSWER: Yes, you must use TCP/IP because NetBEUI is not routable. It also depends on what permissions you enable on the firewall.

QUESTION: What port the ES/Server uses for TCP/IP? You want to use it using TCP/IP over the Internet, so you need to open up the port on your firewall.

ANSWER: The default uses port 6100 for TCP/IP.

PROBLEM:

The ES/Client runs very slow.

ANSWER: The throughput is entirely up to the integrity and bandwidth of your network. There are many things that can affect the speed of the ES/Client. This is not our area of responsibility, but these are most of the things that can affect throughput.

If you have a lot of activity on the Twinax line that this printer is sharing, it will slow the printer down.

If your network, network card (in the server or printer) has problems, it can slow it down.

The network protocol that you chose could make a difference. Your choices are TCP/IP, NetBeui, or IPX/SPX. IPX/SPX is for Novell networks. TCP/IP works on nearly any network. NetBEUI is a small, fast protocol, it has no networking layer; thus, it is not routable and is therefore not suitable for WAN implementations.

For printers, there are many printer settings on the PC that is networked to the printer that can affect throughput. There are the spool settings ("spool print jobs so program finishes printing faster", and "start printing after first page is spooled", or "print directly to printer"), the quality settings (draft quality is fastest). These options are not part of ES32 and are handled by the Windows Printer Application Program Interface. The settings can be different for each manufacturer and model of printer.

See also: <http://www.nlynx.com/html/tb-es3xtwin.htm>

Or: <http://www.nlynx.com/html/tb-espci.htm>

And: <http://www.nlynx.com/html/tb-rpcserver.htm>

And also <http://support.microsoft.com/default.aspx?scid=kb;EN-US;q155012>

IBM 5250 Error Codes



Error Codes are four or six digit hexadecimal codes that may appear on the error line in your terminal workstation display during operation. These codes are sent from the host system.

Refer to the Error Code Range Chart below, and then go the appropriate chart.

Error Code Range	Description of Error Code and Suggested Response
0000 to 003F	An operator error occurred during an entry operation Locate the exact code and follow the instructions. See Operator Entry Errors Codes
0040 to 005F	An error occurred on the communication network during controller/host communication. Check the modems, cables, line and connections to the host system.
0060 to 0069	An operation error occurred when trying Ideographic Support. See Ideographic Support Error Codes.
0070 to 007F	An operator error occurred. See Text Entry Assist Error Codes while using the text processing function.
0090 to 009F	A display station operator Error Codes. See Host Support System caused an error that involves the host system.
100000 to 10FFFF	A display station operator attempted to enter an incorrect or invalid, X.25 command or parameters from the keyboard. See X.25 Error Codes
110000 to 1FFFFF	An error was detected by the DTE or DCE X.25 Network. See sections Call Systems and try to re-establish the communications.
400000 to 400900	Linking errors.
400A00 to 411300	XID Errors
420000 to 441200	LU6.2 Errors
540404 to 540408	LAN AS/400 attachment errors

0000 to 0038, Operator Entry Error Codes

Refer to the following Operator Entry Error Code Chart if the code displayed is in the range from 0000 through 003F. Note the following:

1. If an operator entry error occurs, further input tasks are suspended until the problem is resolved. The error might be an invalid key, input or entering data at too high a rate.
2. In some applications you can press the HELP key to get more information about the nature of the error.
3. To recover from the error, press the **Error Reset** key at the operator workstation involved and then the **Field-**, **Field+**, or **Field Exit** key to blank the field.

Operator Entry Error Code Chart

Error Code	Error Description and Suggested Recovery
0000	HELP Key Not Allowed.
0001	Keyboard Overrun. Entering information at too high a rate.
0002	Invalid Scan Code.
0003	Invalid Command/PF Key
0004	Data Not Allowed in This Field
0005	Cursor in Protected Area of Display.
0006	Key Following SYS REQ Key Not Valid.
0007	Mandatory Enter Field - Must Enter Data
0008	This Field Must Have Alphabetic Characters
0009	This Field Must Have Numeric Characters
0010	Only Characters 0 Through 9 Permitted.
0011	Key For Sign Position of Field Not Valid.
0012	Insert mode--no room to insert data.
0013	Insert Mode - Only Data Keys Permitted
0014	Mandatory Fill Field - Must Fill to Exit
0015	Modulo 10 or 11 Check Digit Error. You entered data into a self-check field.
0016	F - Key Not Valid in this field
0017	To recover - press the ERROR RESET key. Enter data to the end of the field or move the cursor to the start of the field and use
0018	Key Used to exit this field not valid
0019	DUP or FIELD-MARK keys not permitted in this field
0020	Function key not valid for right adjust field
0021	Data must be entered in this field.
0022	Status of field not known
0023	Hex Mode - Entry not valid

0024	Decimal Field - Entry Not Valid
0026	F-Key Entry Not Valid
0027	The key pressed is undefined and therefore cannot be used.
0029	Diacritic Character not valid.
0031	Data Buffer overflow
0032	MSR data error
0033	MSR data received was secured and this field was not specified for secured data.
0034	MSR data exceeds length of field. Data received from card exceeds length of field.
0035	MSR Error. Card incorrectly inserted or damaged.
0036	Cursor Select not allowed in field-exit required state.
0037	This is a non-selectable field - you've pressed cursor select.
0038	Light Pen and MSR Use Not Allowed.

0040 to 005F Communication Network Errors

Cause Code	Description and Suggested Recovery
0040	Modem or DCE is not ready or not functioning properly. Data Set Ready (DSR) Line Inactive (Model 01); DCE Not Ready (Model 02) This error indicates that the modem or DCE was not ready during required intervals of normal operation. The operating state of the modem or DCE is checked at different times, depending on the specific link-level protocol in use.
0041	Idle condition detected (X.25 only). This error indicates that the receive line was idle for 15 or more contiguous bit-times.
0042	Receive Clock Failure This error indicates that the receive clock signal became inactive during data transfer.
0044	30-Second Timeout (switched line only). Indicates that no valid data has been received for 30 seconds. The DTR signal goes inactive to disconnect the line
0045	DCE Will Not Activate (X.25 only) Indicates that either a Disconnect mode (DM) or a DISCONNECT (DISC) command was received during the link setup sequence.
0046	Frame Reject Received. The control unit received an FRMR from the network, indicating that an error was detected in the last frame transmitted. The error log entry of this code includes three sense bytes, which preserve the contents of the FRMR I-field.
0047	Unexpected Disconnect Mode (DM) or DISCONNECT (DISC) Command Received. Indicates that either a Disconnect mode (DM) or a DISCONNECT (DISC) command was received while in information transfer state.
0048	Unexpected Unnumbered Acknowledgment (UA) Frame Received. The control unit received a UA frame while in information transfer state.
0049	An SABME was received while the controller was in information transfer state.
0050	Ready For Sending (RFS) Error. This error occurs when either the RFS line is inactive for up to 30 seconds while the RTS line is active or the RFS line is active when the RTS line is inactive. (except during V.25 bis call establishment).
0051	Transmit Clock Failure. The transmit clock failed during a transmit operation.
0052	Transmit Hardware Error. The link adapter hardware failed to complete a transmit operation within 30 seconds, but no transmit clock or other DCE signal failure was detected.
0053	Expiration of Retry Count (X.25 only). No acknowledgment of a transmission was received within allowed timeout. (Timeout retry count (N2) and retry interval (T1) are specified in CSU Field 7)
0054	Frame Reject Sent. The control unit has sent a link-level FRMR response to the host system after receiving an invalid SDLC or LAPB command. Sense bytes S1, S2 and S3 preserve the contents of the FRMR I-field.

0060 to 0069 Ideographic Errors

0060	Ideographic or Bidirectional support error. Invalid data or key pressed. To correct error, press Error-Reset at the workstation and if it is an Ideographic error, this field only accepts double-data characters--enter the correct data.
0061	Ideographic or Bidirectional support error. Invalid data or key pressed. To correct error, press Error-Reset at the workstation and if it is an Ideographic error, this field only accepts alphanumeric data--enter the correct data.
0062	The cursor is not in position to change the data type. Press Error-Reset and re-attempt.
0063	Invalid Ideographic character entered in Alternate Entry mode. Press Error-Reset.
0064	The keyboard mode does not support the key pressed. Press Error-Reset.
0065	The cursor is in a column reserved for shift-out or shift-in characters. Press Error-Reset.
0066	This is not a data character and therefore, cannot be repeated. Press Error-reset.
0067	The workstation extension character RAM is full. Press Error-Reset.
0068	The output data stream to the 3030 is not valid for extension characters. Press Error-Reset.
0069	Ideographic or Bidirectional support error. Ideographic error--The extension characters to the 3030 are undefined; Bi-directional error--a terminating character cannot be inserted. Press Error-Reset.

0070 to 0078, Text Entry Assist Error Codes

If you are using the Display Write program and an error code in the range 0070 through 007F is displayed, refer to the following Text Entry Assist Error Code Chart for a detailed description of the problem and a suggested recovery action.

Text Entry Assist Error Code Chart

Error Code	Description and Suggested Recovery
0070	Word Wrap/Carrier Return Error. To recover - press the Error Reset key. For more information, press the Help key.
0071	Command Conflict. To recover - press the Error Reset key. Try the operation again when the operation in progress is complete.
0072	Key Not Valid For Cursor Position. To recover - press the Error Reset key. Move the cursor to the correct position and try again.
0073	Invalid Attempt To Delete. To recover - press the Error Reset key. Press the general prompt command key to delete or replace instruction and format change characters. For more information, press the Help key.
0074	Invalid Entry During General Prompt. To recover - press the Error Reset key
0075	Character Not Found. To recover - press the Error Reset key. Try the operation again when the operation in progress is complete.
0076	Continuous Insert Mode Failed . To recover - press the Error Reset key. Wait until the host system processes the text on the screen and try again.
0077	Function Key Selection Not Valid. To recover - press the Error Reset key.
0078	Required Scale Line Not Defined to Control Unit There is an error in the application program. No scale line is defined for this line.

0097 to 0099 Host Support Error Codes

Refer to the following chart if the error code displayed is in the range from 0097 through 0099.

NOTE: When one of these codes is displayed, the required host support will not be available.

Host Support Error Code Chart

Error Code	Description and Suggested Recovery
0097	Test Request Function Not Supported. Contact host system operator and determine why the function is not supported.
0098	Undefined Hardware Error To recover - press the Error Reset key.
0099	Host Support Not Currently Available To recover - press the Error Reset key.

100000 to 101D00 X.25 Error Codes

When a keyboard entry error occurs while in X.25 Communication mode, a six-digit error code between 100000 and 10FFFF is displayed. Error codes along with a short description and suggested recovery action(s) are listed below:

For errors 100200 - check the system configuration. If the settings match, press the **ERROR RESET** key, check options and repeat the operation. Refer to Host Access Section for procedure on restarting communications. If this too fails, call your System Operator.

Error Code	Description and Suggested Recovery
100000	Previous CALL command in progress. Wait until the previous call is complete, or an error code other than 100000 is displayed.
100100	Virtual circuit already established. Wait for the virtual circuit to be detached before trying CALL/OPEN commands. It is possible to communicate over one virtual circuit at a time.
100200	ANSWER command entered for a PVC - Permanent Virtual Circuit`.
100300	CALL command entered for a PVC - Permanent Virtual Circuit
100400	Invalid logical channel ID. (Less than 3 characters long)
100500	Invalid logical channel ID. (Not a hexadecimal value between 001 and FFF).
100600	Invalid password. (More than 8 characters)
100700	Invalid Host Network Address. (TO network address exceeds 15 digits)
100800	Invalid Host Address. (FROM network address exceeds 15 digits)
100900	Invalid Host Network Address
100A00	Attempt to enter manual options or flow control negotiation from the keyboard with these parameters disabled.

100B00	Facility option entered incorrectly. (Characters entered are not hexadecimal - 0 through 9 or A through F)
100C00	Invalid packet window size option. (Less than 02)
100D00	Invalid packet window size option. (Greater than 07 with Modulo 8 specified)
100E00	Invalid packet window size option. (Greater than 15 with Modulo 128 specified)
100F00	Packet size not equal to 064, 128, 256 or 512.
101000	Invalid closed user group option. (Does not contain two decimal digits)
101100	Invalid control character entered.
101200	Host network address missing a CALL command.
101300	First control character (A, O, C or D) has already been entered.
101400	Network address was entered for a permanent virtual circuit (PVC).
101500	Password option was entered for a permanent virtual circuit (PVC)
101600	Invalid password option. (All not alphanumeric characters)
101800	Invalid password option. (All not alphanumeric characters)
101900	The Q or the E option was selected with the ANSWER command.
101A00	F or R control character entered for an ANSWER command or a PVC. [F=Facility; R=Reversed charging].
101B00	The Q or the E option was selected with the ANSWER command.
101C00	CALL entered for an answer-only SVC.
101D00	OPEN entered for an answer-only SVC

API -- **A**pplication **P**rogram **I**nterface. An API is an Interface, which is used for accessing an application or a service from a program. An API makes it possible to use programs from within programs, therefore it is the foundation for modular systems with clearly defined Interfaces between separate components.

Balun – (**BAL**anced **UN**balanced) A device that connects a balanced line to an unbalanced line; for example, a twisted pair to a twinaxial cable.

CPI – **C**haracters **P**er **I**inch

Daisy chain – [Twinaxial](#) connected devices may be daisy chained together. The last device further in the chain from the host must terminate the line so that the signal goes back to the host. T-cables auto terminate the twinax line. When using baluns you cannot daisy chain.

Emulator - A program that allows a computer to act like a (particular brand of) terminal, e.g. a vt-100. The computer thus appears as a terminal to the host computer and accepts the same escape sequences for functions such as cursor positioning and clearing the screen.

ETU – **E**mulator **T**ransfer **U**tility. This is a file transfer program that is installed on a IBM midrange host, such as the AS/400 or Advanced System/36. <http://www.ringdale.com>

Font -- a set of characters that has the same typeface, style (italic, bold, etc.) and size (10,12, 24, etc.).

HLLAPI – **H**igh **L**evel **L**anguage **A**pplication **P**rogram **I**nterface. An IBM programming interface that allows a PC application to communicate with a midrange application. The hardware hookup is handled via normal micro to midrange 5250 emulation.

HotSpot – This is an area on the screen this is linked to a specific command or menu for that specific screen so that you can activate the command or menu by clicking on it.

INF - (**I**N**F**ormation file) A Windows file that contains installation information.

LPI – **L**ines **P**er **I**inch

Midrange host -- In general, midrange refers to computers that are more powerful and capable than personal computers but less powerful and capable than mainframe computers.

Monospaced -- A type [font](#) where all characters have the same width.

PAPI – Microsoft uses the **P**rinter **A**pplication **P**rogram **I**nterface to format printer data for a specific printer using the INF for that printer.

OCL -- Object Constraint Language is an expression language that can be used to define expressions in object-oriented models. These expressions enrich the respective model with precise and unambiguous annotations, thus preserving precious information about the underlying business domain.

PCI -- (**P**eripheral **C**omponent **I**nterconnect) the most widely used I/O bus (peripheral bus). Used in computers of all sizes, it provides a shared data path between the CPU and peripheral controllers, such as network, display, SCSI and RAID cards. However, with so many controller circuits built into the motherboard, the need for vacant PCI slots in a PC has diminished considerably.

PCL -- **P**rinter **C**ontrol **L**anguage developed by [Hewlett Packard](#) and used in many of their laser and inkjet printers. Printer Control Language (PCL) is a language (a set of command codes) that enables applications

to control Hewlett-Packard DeskJet, LaserJet, and other HP printers. Today, most computers have only PCI slots along with one AGP or one PCI Express slot for the display adapter.

RPC -- **R**emote **P**rocedure **C**all.

SCS – **S**NA **C**haracter **S**et is the print control language that IBM printers use.

T-cable - self-terminating twinax connector cable that connects to the adapter's 15-pin female DB connector.

TDLC – **T**winax **D**ata **L**ink **C**ontrol.

TTF - TrueType [Font](#) – A scalable font technology that renders fonts for both the printer and the screen.

Unlike PostScript and other font technologies, in which the rendering algorithms are maintained in the rasterizing engine, each TrueType font contains its own algorithms for converting the outline into bitmaps. The lower-level language embedded within the TrueType font allows unlimited flexibility in the design.

TVD – **T**elnet **V**irtual **D**evice. This is a Display Emulator session. The TVD file contains the properties.

TVP – **T**elnet **V**irtual **P**rinter. This is a Printer Emulator session. The TVP file contains the properties.

Twinaxial cable - Abbreviated as twinax, a twinaxial cable is a cable with three conductors. Two conductors are insulated wires in the center of the cable. The other conductor surrounds the first two conductors and a layer of insulation separates them. Typically, twinax is used to connect AS/400 or System/36 computers with its devices.

Twinax Controller – Twinax devices are attached to a controller. This may be on the host, or on a remote controller, for example an IBM 5494 Remote Controller.

Twinax Port – Each twinax cable is attached to a port on the [twinax controller](#). This may be at the back of the host, a remote controller, or on a twinax brick. They are numbered starting at port 00.

WSA – **W**orkstation **A**ddress is the physical address (or addresses) assigned to each device that is connected to a Twinaxial port. There are seven addresses on a Twinaxial port and they range from 0 to 6. Also referred to as the host address.

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Georgetown, Texas 78638
Tel: 1-888-288-9080 or 1-512-288-9080
FAX: 1-512-826-2621
<http://www.nlynx.com>
<http://www.ringdale.com>

Before you call:

Please have the following information ready:

- ✓ Your contact information.
- ✓ Serial number of the adapter card. This is located on the card guide where you can see it from the back of the PC.
- ✓ Cursor position, upper right, upper left, dancing terminal.
- ✓ The symptoms of the problem.
 - Does not work at all or intermittent?
 - AS/400 or System 36?
 - Certain application?
- ✓ History of the Problem:
 - Did the device work for a period of time or fail immediately after installation?
 - Was any PC option changed (hardware or software) prior to the problem appearing?

Address manual comments to:

Ringdale Inc.
Technical Support
101 Halmar Cove
Georgetown, Texas 78628
888-288-9080
www.ringdale.com
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ES/Server Limited Warranty

General Terms and Conditions

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